A Statement of the Aims of Undergraduate Education at Dalhousie

Dalhousie University offers undergraduate education enriched by a longstanding institutional commitment to research and to graduate and professional education. The University tries to assist all its undergraduate students to become independent thinkers and articulate communicators, knowledgeable about their chosen disciplines or professions, conversant with a reasonable body of general knowledge, and committed to learning throughout their lives.

**Dalhousie assists its students to learn how to think for themselves.** Students in all disciplines and professions can expect to develop skills and attitudes crucial for logical and independent thought. The faculty strives to teach students how to think, rather than what to think, and to enable them to make fair-minded enquiries in their fields of study and into the broader ethical, cultural and social issues that shape our lives. An educated person thinks carefully, reconsiders received ideas, and leads an examined life. The development of these habits of mind is the primary goal of undergraduate study.

**Dalhousie assists its students to learn to express themselves, orally and in writing with clarity, precision and style.** It does so, not only because communication skills permit the efficient transfer of information, but also because they make possible dialogues which lead to new ideas and to deeper appreciation of existing knowledge. Because a communal effort to exchange ideas and information is at the heart of university life, students in all disciplines and professions need opportunities to develop their skills in writing and in speaking at all levels of the undergraduate curriculum.

**Dalhousie assists its students to master a combination of specialized and general knowledge.** The specialized knowledge acquired by undergraduates at Dalhousie varies from discipline to discipline and even from student to student. Such knowledge should include, not only data skills, but also an understanding of the theories, structures and processes central to the discipline or profession in question, and an awareness of their practical applications and ethical consequences. Undergraduate students at Dalhousie should become familiar with a significant body of general knowledge as well. All should become acquainted with concepts central to our own culture and those of others. All should acquire basic quantitative skills and some knowledge of the principles of science and technology. All should share a sense of history and an appreciation of achievements in literature, philosophy and the arts. Such general knowledge helps us not only to confront the practical demands of work and life, but also to comprehend more fully our experience of the human condition.

**Dalhousie assists its students to develop the capacity for commitment to learning throughout their lives.** Their educational experiences within and outside the classroom should be rich and diverse. By providing social, cultural, recreational and other opportunities for student involvement and leadership, Dalhousie acknowledges responsibility for promoting both personal and intellectual growth.
Smoke Free/Scent Free Dalhousie

Providing a Healthy Work and Study Environment

To protect people from involuntary exposure to tobacco smoke, in 2003, Dalhousie declared the University entirely smoke-free. The No Smoking Policy prohibits smoking in all University buildings, including University residences, on University property and in University Vehicles.

Under this policy, those wishing to smoke are asked to leave University property (http://safety.dal.ca/programs_services/smokefree/property.php). While smoking on public property, smokers are asked to avoid littering, to be respectful of others, and of course to abide by the municipal by-law.

The University has also acted to support its many students and employees who report that they are harmed when they are exposed to scents which are present in many scented personal care products. Scents in perfume, cologne, hair-spray, after-shave, and even some soap and fabric softeners, cause serious illness in people who are sensitive to these chemicals.

To provide an environment which supports teaching and learning, Dalhousie asks students, staff, faculty and visitors, to refrain from using such scented products while at the University. The scent reduction program is part of a broader effort to limit, to the fullest extent practical, exposure to all chemicals in our buildings.

For more information on the Smoking Policy and the Scent Reduction Program, contact the Safety Office by email at Safety.Office@dal.ca or consult the web sites http://safety.dal.ca/programs_services/scentfree/ and http://safety.dal.ca/programs_services/smokefree/.
Table of Contents

Academic Dates 2014/2015 .......................................................... 1
Admission Dates 2014/2015 ......................................................... 2
Definitions .................................................................................. 3
Undergraduate Programs ............................................................. 6
Dalhousie University ................................................................. 8
Admission Requirements ............................................................... 10
- General Admission Requirements ............................................ 10
- Specific Program Requirements ............................................... 12
- Application Submission ........................................................... 19
University Regulations ............................................................... 20
- General ..................................................................................... 20
- Recission of Acceptance into a Program .................................... 20
- Official Examination Regulations ............................................. 20
- Policy in the Event that a Formal Examination Cannot be Completed at the Regularly Scheduled Time ........................................... 20
- Policy for the Scheduling of Courses/Examinations .................. 21
- Retention of Student Work ....................................................... 21
- Freedom of Information and Protection of Privacy .................... 21
- Release of Information About Students ..................................... 21
- Accommodation Policy For Students ........................................ 21
- Policy on the Submission of Student Papers ......................... 23
- Intellectual Honesty ................................................................. 23
- Academic Dishonesty ............................................................... 24
- Senate Discipline Committee ................................................... 24
- Code of Student Conduct ......................................................... 27
- Protection of Property ............................................................. 29
- Senate Appeals Committee ....................................................... 29
- Suspension or Dismissal from a Program on the Grounds of Professional Unsuitability Faculty of Health Professions ............... 30
Acceptable Use of Information Technology Resources ............... 31
Academic Regulations ............................................................... 32
- College of Continuing Education .......................................... 43
- College of Sustainability ......................................................... 44
- Faculty of Agriculture ............................................................... 49
- Academic ................................................................................ 62
- Agriculture ............................................................................. 63
- Agronomy ............................................................................... 63
- Animal Science ...................................................................... 64
- Applied Science ..................................................................... 68
- Aquaculture .......................................................................... 71
- Art .......................................................................................... 71
- Biology ................................................................................... 72
- Chemistry .............................................................................. 74
- Communications ................................................................. 75
- Computer Science ................................................................. 76
- Economics .............................................................................. 77
- Engineering ............................................................................ 79
- English .................................................................................. 80
- Environmental Sciences ......................................................... 81
- Extension Education ............................................................... 82
- Food Science .......................................................................... 83
- French .................................................................................... 83
- Genetics .................................................................................. 84
- Geography ............................................................................... 85
- Geology .................................................................................. 85
- History ................................................................................... 86
- Horticulture ........................................................................... 86
- International Development ..................................................... 89
- International Food Business ..................................................... 90
- Internship ............................................................................... 90
- Management ......................................................................... 91
- Mathematics ......................................................................... 94
- Microbiology .......................................................................... 95
- Nutrition ................................................................................ 95
- Physics ................................................................................... 96
- Philosophy .............................................................................. 96
- Psychology ............................................................................. 97
- Political Science ..................................................................... 97
- Plant Science ......................................................................... 98
- Research Methods/Project Seminars ....................................... 99
- Rural Studies .......................................................................... 100
- Sociology ............................................................................... 100
- Soils ....................................................................................... 101
- Spanish ................................................................................... 102
- Special Topics ........................................................................ 102
- Statistics ................................................................................ 103
- Veterinary Technology .......................................................... 104
- Faculty of Architecture and Planning ...................................... 107
- School of Architecture ........................................................... 107
- School of Planning ................................................................ 116
- College of Arts and Science .................................................. 124
- Introduction .......................................................................... 124
- Degree Requirements ........................................................... 125
- General ................................................................................... 125
- Programs ................................................................................. 126
- Faculty of Arts and Social Sciences ...................................... 142
- Arabic ...................................................................................... 143
- Arts and Social Sciences ......................................................... 144
- Canadian Studies ................................................................... 146
- Chinese (Mandarin) ............................................................... 151
- Classics .................................................................................. 152
- Contemporary Studies ........................................................... 160
- Costume Studies ..................................................................... 167
- Early Modern Studies Program ............................................. 168
- English ................................................................................... 174
- Environmental Studies ........................................................... 185
- Environment, Sustainability and Society ............................... 186
- European Studies .................................................................. 187
- Film Studies ........................................................................... 190
- Fountain School of Performing Arts ....................................... 191
- Music ...................................................................................... 192
- Theatre ................................................................................... 203
- French .................................................................................... 212
- Gender and Women’s Studies ............................................... 220
- Geography .............................................................................. 226
- German .................................................................................. 230
- Health Studies ....................................................................... 235
- History ................................................................................... 236
- History of Science and Technology ........................................ 254
- International Development Studies ....................................... 260
- Italian Studies ......................................................................... 268
- Journalism .............................................................................. 270
- Law and Society ..................................................................... 272
- Linguistics .............................................................................. 273
- Philosophy .............................................................................. 275
Political Science ................................................................. 292
Popular Culture Studies .................................................... 295
Religious Studies .............................................................. 295
Russian Studies ................................................................ 301
Sociology and Social Anthropology ...................................... 306
Spanish and Latin American Studies ..................................... 320
Faculty of Computer Science .............................................. 328
Computer Science ............................................................ 327
Informatics ........................................................................ 334
Faculty of Engineering ....................................................... 337
Engineering ...................................................................... 339
Chemical Engineering ....................................................... 344
Civil and Resource Engineering .......................................... 345
Civil Engineering ............................................................. 351
Electrical and Computer Engineering ................................. 352
Environmental Engineering .............................................. 357
Food Science ..................................................................... 358
Industrial Engineering ...................................................... 359
Materials Engineering ....................................................... 363
Mechanical Engineering ................................................... 364
Mineral Resource Engineering .......................................... 369
Process Engineering and Applied Science......................... 369

Faculty of Health Professions ............................................ 380
Disability Management .................................................... 382
Health Administration ...................................................... 383
Health and Human Performance ........................................ 386
Health Promotion ........................................................... 389
Kinesiology ..................................................................... 391
Leisure Studies .................................................................. 395
Health Professions, Interdisciplinary ................................. 399
Health Sciences ............................................................... 400
Interprofessional Health Education ..................................... 418
Nursing ........................................................................... 418
Occupational Therapy ..................................................... 426
Pharmacy ......................................................................... 428
Social Work ...................................................................... 435
Family of Management .................................................... 440
Entrepreneurial Skills Program ......................................... 440
Commerce ............................................................ 441
Management ................................................................. 451

Faculty of Medicine .......................................................... 460
Medical Neuroscience ..................................................... 461
Pharmacology ................................................................ 462
Physiology and Biophysics ................................................ 463
Family of Science ........................................................... 465
Biochemistry and Molecular Biology ................................. 466
Chemistry ...................................................................... 471
Co-operative Education in Science (Science Co-op) ............. 490
Earth Sciences .................................................................. 492
Economics ..................................................................... 502
Environmental Science ................................................... 508
Environment, Sustainability and Society ......................... 514
Food Science ................................................................... 515
Geography ..................................................................... 515
Humanistic Studies in Science .......................................... 519
Integrated Science Program ............................................. 519
Marine Biology .............................................................. 521
Mathematics and Statistics .............................................. 527
Mathematics .................................................................. 528

Medical Sciences .......................................................... 536
Microbiology and Immunology ........................................ 538
Neuroscience .................................................................. 542
Ocean Sciences ............................................................. 550
Oceanography ............................................................... 553
Physics and Atmospheric Science ..................................... 558
Psychology and Neuroscience ........................................... 565
Psychology ..................................................................... 567
Science, Interdisciplinary .................................................. 577
Statistics ......................................................................... 578

Centres and Institutes ...................................................... 582
Resources and Services .................................................... 588
Fees ............................................................................. 595

Awards ........................................................................ 600
General Policy ................................................................. 600
Entrance Awards .............................................................. 601
In-Course Awards ............................................................ 606
In-Course Scholarships .................................................... 607
Prizes, Medals, and Awards .............................................. 622
Financial Aid and Loans ................................................... 639
Dalhousie Bursaries ......................................................... 640
Continuing Education Awards and Bursaries ...................... 647

Index ........................................................................... 648

Awards Index ................................................................ 653

Campus Maps ................................................................ 662
Important Notices

Students are advised that the matters dealt with in this Calendar are subject to continuing review and revision. This Calendar is prepared some months before the year for which it is intended to provide guidance. Students are further advised that the content of this calendar is subject to change without notice, other than through the regular processes of Dalhousie University, and every student accepted for registration in the University shall be deemed to have agreed to any such deletion, revision or addition whether made before or after such acceptance. Additionally, students are advised that this calendar is not an all-inclusive set of rules and regulations but represents only a portion of the rules and regulations that will govern the student’s relationship with the University. Other rules and regulations are contained in additional publications that are available to the student from the Registrar’s Office, and/or the relevant faculty, department or school.

The University reserves the right to limit enrolment in any program. Students should be aware that enrolment in many programs is limited and that students who are admitted to programs at Dalhousie are normally required to pay deposits on tuition fees to confirm their acceptance of offers of admission. These deposits may be either non-refundable or refundable in part, depending on the program in question. While the University will make every reasonable effort to offer courses as required within programs, prospective students should note that admission to a degree or other program does not guarantee admission to any given course. However, no student in a graduating year may be excluded from a course required by that student to meet degree requirements because of lack of space (This rule does not apply to elective courses or to preferred sections of courses.). Students should select optional courses early in order to ensure that courses are taken at the most appropriate time within their schedule. In some fields of study, admission to upper level courses may require more than minimal standing in prerequisite courses.

Dalhousie University does not accept any responsibility for loss or damage suffered or incurred by any student as a result of suspension or termination of services, courses or courses caused by reason of strikes, lockouts, riots, weather, damage to university property or for any other cause beyond the reasonable control of Dalhousie University.

Inquiries should be directed to:

The Registrar
Dalhousie University
PO Box 15000
Halifax, Nova Scotia B3H 4R2
Canada
Telephone: (902) 494-2450
Fax: (902) 494-1630
E-mail: Registrar@dal.ca

Other Programs

Information on programs offered by the Faculties of Dentistry, Law and Medicine, can be found in the Dentistry, Law, Medicine Calendar. Information on programs offered by the Faculty of Graduate Studies can be found in the Graduate Studies Calendar.
## Academic Dates 2014/2015

### General Information

#### Other Academic Dates

<table>
<thead>
<tr>
<th>Month</th>
<th>Event Description</th>
<th>Date</th>
<th>Date</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Friday, 9 Faculty of Agriculture Convocation</td>
<td>May 9, 2014</td>
<td>May 15, 2014</td>
<td>May 22, 2014</td>
</tr>
<tr>
<td></td>
<td>Tuesday, 8 Examinations begin commerce co-op, computer science &amp; engineering</td>
<td>July 8, 2014</td>
<td>July 15, 2014</td>
<td>July 22, 2014</td>
</tr>
<tr>
<td></td>
<td>Saturday, 9 Examinations end except commerce co-op</td>
<td>July 9, 2014</td>
<td>July 16, 2014</td>
<td>July 23, 2014</td>
</tr>
<tr>
<td></td>
<td>Friday, 15 Examinations end commerce co-op</td>
<td>July 15, 2014</td>
<td>July 22, 2014</td>
<td>July 29, 2014</td>
</tr>
</tbody>
</table>

### ACADEMIC CLASS ADD/DROP DATES

(For financial deadlines and refund dates, visit www.dal.ca/studentaccounts.)

<table>
<thead>
<tr>
<th>Term Identifier</th>
<th>Part of Term Description</th>
<th>Start Date</th>
<th>Repeat Dates</th>
<th>Last Day to Change and Add Classes for registered students</th>
<th>Last Day to Drop without “W”</th>
<th>Last Day to Change from Audit to Credit and Vice Versa</th>
<th>Last Day to Drop with “W”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A 7-week Term</td>
<td>May 5 - June 20, 2014</td>
<td>May 12, 2014</td>
<td>May 21, 2014</td>
<td>June 6, 2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E 3-week Term</td>
<td>June 2 - June 24, 2014</td>
<td>June 6, 2014</td>
<td>June 12, 2014</td>
<td>June 16, 2014</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Fall Term 2014

<table>
<thead>
<tr>
<th>Term Identifier</th>
<th>Part of Term Description</th>
<th>Start Date</th>
<th>Repeat Dates</th>
<th>Last Day to Change and Add Classes for registered students</th>
<th>Last Day to Drop without “W”</th>
<th>Last Day to Change from Audit to Credit and Vice Versa</th>
<th>Last Day to Drop with “W”</th>
</tr>
</thead>
</table>

### Winter Term 2015

<table>
<thead>
<tr>
<th>Term Identifier</th>
<th>Part of Term Description</th>
<th>Start Date</th>
<th>Repeat Dates</th>
<th>Last Day to Change and Add Classes for registered students</th>
<th>Last Day to Drop without “W”</th>
<th>Last Day to Change from Audit to Credit and Vice Versa</th>
<th>Last Day to Drop with “W”</th>
</tr>
</thead>
</table>

### Summer Term 2015

<table>
<thead>
<tr>
<th>Term Identifier</th>
<th>Part of Term Description</th>
<th>Start Date</th>
<th>Repeat Dates</th>
<th>Last Day to Change and Add Classes for registered students</th>
<th>Last Day to Drop without “W”</th>
<th>Last Day to Change from Audit to Credit and Vice Versa</th>
<th>Last Day to Drop with “W”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9 12-week Term</td>
<td>June 1 - August 20, 2015</td>
<td>July 12, 2015</td>
<td>August 7, 2015</td>
<td>August 24, 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E 3-week Term</td>
<td>June 1 - June 19, 2015</td>
<td>June 3, 2015</td>
<td>June 5, 2015</td>
<td>June 12, 2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B 7-week Term</td>
<td>July 2 - August 20, 2015</td>
<td>July 8, 2015</td>
<td>July 17, 2015</td>
<td>August 4, 2015</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Academic Dates 2014/2015

#### September

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, 1</td>
<td>Labour Day - University closed</td>
</tr>
<tr>
<td>Thursday, 4</td>
<td>Classes begin, full term</td>
</tr>
<tr>
<td>Friday, 10</td>
<td>Last day to apply for honours programs</td>
</tr>
<tr>
<td>Friday, 17</td>
<td>Last day to change from Dalhousie to King’s and vice versa</td>
</tr>
</tbody>
</table>

#### October

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, 6</td>
<td>Monday, 4 Labour Day - University closed</td>
</tr>
<tr>
<td>Wednesday, 8</td>
<td>Last day to apply for honours programs</td>
</tr>
<tr>
<td>Friday, 10</td>
<td>Last day to change from Dalhousie to King’s and vice versa</td>
</tr>
</tbody>
</table>

#### November

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, 13</td>
<td>Thanksgiving Day - University closed</td>
</tr>
<tr>
<td>Monday, 17</td>
<td>Study Day (except students in Co-op Clinicals, or Internships)</td>
</tr>
<tr>
<td>Tuesday, 21</td>
<td>Remembrance Day - University closed</td>
</tr>
</tbody>
</table>

#### December

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, 1</td>
<td>Last day to apply to graduate in May</td>
</tr>
<tr>
<td>Tuesday, 2</td>
<td>Classes end, full term</td>
</tr>
<tr>
<td>Thursday, 4</td>
<td>Examinations begin</td>
</tr>
<tr>
<td>Sunday, 14</td>
<td>Examinations end</td>
</tr>
</tbody>
</table>
Admission Dates 2014/2015

Final Dates for Receipt of Applications for Admission

Regular Session 2014/2015

Faculties of Arts and Social Sciences, Computer Science, Engineering, Management, and Science

International Students (except USA) ........................................................... April 1
Students entering from Canada or USA..................................................... June 1
Returning Dalhousie Students ............................................................... August 15
Diploma in Meteorology ........................................................................ August 15

Faculty of Agriculture

Bachelor of Agriculture ................................................................. July 1
Diploma in Veterinary Technology.................................................. February 28
All other programs ............................................................................. August 15

Faculty of Architecture and Planning

Bachelor of Community Design ................................................. June 1
Bachelor of Environmental Design Studies ........................................ March 1

Faculty of Health Professions

Pharmacy ............................................................................................... February 1
Social Work, Health Sciences ..................................................... February 15
BSc (Recreation)1, BSc (Kinesiology)1, and BSc (Health Promotion)1 ........................................................................ June 1
Health Services Admin (DHSA, DEHSM) ......................................... March 15
BSc (Nursing) ....................................................................................... March 15

Dentistry2

DDS .................................................................................................. December 1
Dental Hygiene ................................................................................... March 15
Dentistry Qualifying Program ..................................................... September 1
Bachelor of Dental Hygiene (BDH) .................................................. March 15
Paediatric General Practice Residency Program ............................. October 15

Medicine2

MD ................................................................................................. August 15

Law2

JD .................................................................................................. February 28

Winter Term

BA and BSc programs only .......................................................... November 15
Returning Dalhousie Students .................................................. November 15
BEDS Transfer students .................................................. November 15

1 Late applications may be considered but we cannot guarantee space in programs.
2 Information on these programs is included in the appropriate calendar.
3 For students returning to the same undergraduate programs, or attending as Special Students in any faculty.

NOTE: In order to be considered for entrance scholarships, applications for admission from high school students must be received by March 15 for most programs.
Definitions

The following definitions are intended to facilitate an understanding of the calendar and not to define all words and phrases used in the calendar which may have specific meanings.

Academic Dismissal
An student's required withdrawal from a program due to unsatisfactory academic performance.

Academic Program
A distinct group of courses and other requirements which lead to eligibility for a degree or other university-awarded credential.

Academic Terms
- Fall term: September - December
- Winter term: January - April
- Summer term: May - August
- Regular term: September - April

Advanced Standing
Students possessing advanced knowledge of a subject will be encouraged to begin their studies in that subject at a level appropriate to their knowledge, as determined by the department/school/college concerned. However, such students must complete, at Dalhousie, the full number of credits required for the particular credential being sought.

Audit Student
A student permitted to attend courses but not expected to prepare assignments, write papers, tests or examinations. Credit is not given nor is a mark awarded for audit courses. Courses appear on the transcript with the notation “Aud.” If not already admitted to the University, audit students must apply. Students may register to audit a course only after the first day of courses.

Candidate
The term candidate for a doctoral degree is used to identify a student who has fulfilled all the requirements for the PhD except for the submission and defence of the thesis; thus, a candidate will have successfully completed the residency requirement, all course work, qualifying and comprehensive examinations (as applicable), and the thesis proposal defence (if applicable). This status is equivalent to the common terms “all but the thesis” or “all but dissertation” used at some institutions. The term candidate cannot be employed with regard to a Masters degree student.

Clerkship
See Internship.

Clinical Practice
See Internship.

Continuing Fees
The tuition fees charged to graduate students who have fulfilled their program fee applicable, and the thesis proposal defence (if applicable). This status is equivalent to the common terms “all but the thesis” or “all but dissertation” used at some institutions. The term candidate cannot be employed with regard to a Masters degree student.

Credit
A unit by which University course work is measured. A full year (X/Y) course is normally worth one full credit (six credit hours).

Credit Hours
One full credit is equal to six credit hours and one half credit is equal to three credit hours.

CRN
Each course has a course reference number (CRN) attached to it. This number is to be used when registering for courses.

Crosslisted Courses
Courses are crosslisted based upon course content that deals with more than one subject area in a substantive way. The crosslisting recognizes the interdisciplinary nature of the course.

Email
Email is an authorized means of communication for academic and administrative purposes within Dalhousie. The University will assign all students an official email address. This address will remain in effect while the student remains registered and for one academic term following a student’s last registration. This is the only email address that will be used for communication with students regarding all academic and administrative matters. Any redirection of email will be at the student’s own risk. Each student is expected to check her or his official email address frequently in order to stay current with Dalhousie communications.

Exclusion
An exclusion is when one course is sufficiently similar to another course that credit will only be given once if both are taken.

Externship
See Internship.

Fieldwork
See Internship.

Full-time Students
Those registered for three full courses (18 credit hours for UG, AC, HP level, 12 credit hours for TC level) or more in the Regular term, or the equivalent of three half credits (nine credit hours for UG, AC, HP level, six credit hours for TC level) courses or more in either the Summer, Fall or Winter term.

Good Standing
Students who meet the required GPAs are considered to be in good academic standing.

Grade Point Average (GPA)
Weighted sum of the grade points earned, divided by the number of credit hours enrolled.

Term GPA: Courses taken in a single term.

Cumulative GPA: All courses taken while enrolled in a level of study.

GSIS
Graduate Student Information System. The electronic database used to approve graduate student program requirements and progress.

Graduate Student
A student with a Bachelor’s degree, usually with Honours or equivalent, enrolled in a Master’s or Doctoral program, or a graduate diploma program.

Internship, Fieldwork, Clinical Practice, Externship, Practicum, Clerkship
These terms are used in programs to describe practical professional educational experiences that are conducted in a non-university setting such as a health or social service agency.
General Information

4 Definitions

Level of Study
The following are levels of study:
- TC Technology Diploma - Faculty of Agriculture
- AC Architecture/Engineering (Years 3 and 4)
- HP Health Professions
- UG Agriculture
- Arts & Social Sciences
- Computer Science
- Engineering (Years 1 and 2) and Bachelor of Food Science
- Management

Non-thesis Program
A Master’s program of study based on course work which may also include a research project. This includes many of the professional graduate programs. Some of these programs also offer a thesis option.

Part-time Students
Students registered for fewer than three full-credit courses (18 credit hours for UG, AC, HP level, 12 credit hours for TC level) or the equivalent of three half-credit (nine credit hours for UG, AC, HP level, six credit hours for TC level) courses in either the Summer, Fall or Winter term.

Part-time Graduate Student (Program Fee)
A part-time graduate student paying program fees is a student who has been approved by the department and the Faculty of Graduate Studies as working part-time on their graduate degree. A part-time graduate student is taking less than nine credit hours per term.

Part-time Student (Per Course Fee)
A student who is taking less than nine credit hours (three half-credit course) in a term is considered a part-time student.

Per Course Fee
The fees charged to students in a Per-Course Fee Degree. Students pay fees according to the number of courses taken in any given term.

Practicum
See Internship.

Prerequisite
A requirement that must be fulfilled prior to registering in a specific course.

Probation
Warning to students that their academic performance is unsatisfactory and that they will be dismissed from their program unless their performance improves by the end of the next term.

Program Fees
The tuition fees charged to students in a program-fee degree. The program fee is based on total tuition for a specified number of years, varying according to the number of courses taken in any given term.

Qualifying Students (Master’s only)
A full-time or part-time student with a Bachelor’s degree or its equivalent in a specified number of years are required to pay a continuing fee.

Residency
The period of time that graduate students are expected to be on campus for fulfillment of their formal program requirements. In some programs, part of the residency period may, with permission, include some time off campus (e.g. for fieldwork or research).

Scholarship GPA
See Awards section page 600.

Special Students
Students who are not candidates for a degree or diploma but who wish to take courses which may be allowed for credit. This is not the same as auditing a course. Special students must satisfy normal admission requirements.

Special Student - Graduate Studies (SSGS)
A student who is not registered in a graduate program but is taking graduate courses. Special students must satisfy normal admission requirements.

 Supervisor
The supervisor is a member of Faculty of Graduate Studies who is directly responsible for the supervision of a graduate student’s program. In this capacity, the supervisor assists the student in planning a program, ensures that the student is aware of all program requirements, degree regulations, and general regulations of the department and Faculty of Graduate Studies, provides counsel on all aspects of the program, and stays informed about the student’s research activities and progress. The supervisor is also charged with ensuring that a student’s research is effective, safe, productive, and ethical. Specific duties of the supervisor include preparation of a program of study with the student, arrangement of and attendance at all supervisory committee meetings and candidate examinations, while ensuring that these courses are scheduled and held in accordance with Faculty of Graduate Studies and Departmental regulations, and reviewing the thesis both in draft and in final form.

Thesis Only Fees
See Continuing Fees.

Thesis Program
A Master’s or Doctoral program of study involving a major research component in the form of a written thesis. Some programs offer a non-thesis option.

Transcript
A transcript is a complete history of a student’s academic record at Dalhousie. Partial transcripts, e.g. a portion of a student’s record pertaining to registration in a particular degree, faculty, or level of study, are not issued.

Transfer Student
A transfer student is one who is awarded credit towards a Dalhousie degree for academic work completed at a previous university or equivalent institution of higher learning.

Undergraduates
Students who are candidates for an undergraduate degree or diploma.

Visiting Student
A person permitted to take courses at Dalhousie for transfer of credit to another university.

Visiting Student Graduate Studies (VSGS)
A person permitted to take courses at Dalhousie for transfer of credit to another university (Letter of Permission required).

Work Term
Career related work experience required in Co-operative Education programs. Work terms are usually 13-16 weeks in duration.

Writing Intensive
Writing Intensive courses are those which emphasize the process of writing, frequency of writing assignments, and weighting of these assignments in the course grades. A Writing Intensive course is normally taken as a sequel to a Writing Requirement course, but does not satisfy the Writing Requirement.

I. Course Codes
Numbers
0010-0099 pre-university preparation courses
0100-0399 technology level courses
1000 level courses are introductory
2000-4000 level courses are advanced
5000-9000 level are Graduate level (with some exceptions)
Definitions

Credit Hours—examples only

- 0.5 credit hours = 0.5 credit UG, AC, HP level
- 1 credit hour = 1 full credit UG, AC, HP level
- 2 credit hours = 2 full credits TC level

Subject Codes

Four letter codes are used to describe the department offering a particular course as follows:

- ACAD - Academic
- AGRI - Agriculture
- AGRN - Agronomy
- ANAT - Anatomy & Neurobiology
- ANSC - Animal Science
- APSC - Applied Science
- AQUA - Aquaculture
- ARAB - Arabic
- ARCH - Architecture
- ARTS - Art
- ASSC - Arts and Social Sciences Interdisciplinary
- BCBD - Community Building and Design
- BIOA - Biology (Faculty of Agriculture)
- BIOL - Biology
- BIOC - Biochemistry and Molecular Biology
- BIOE - Biological Engineering
- BIO - Biology
- BIOT - Biophysics
- BMNG - Biomedical Engineering
- BUSI - Business Administration
- CANA - Canadian Studies
- CBBI - Computational Biology and Bioinformatics
- CI&K - Community Health & Epidemiology
- CHEE - Chemical Engineering
- CHEM - Chemistry
- CHIN - Chinese
- CHMA - Chemistry (Faculty of Agriculture)
- CIVL - Civil Engineering
- CLASS - Classics
- CMMT - Communications
- CNLT - Centre for Learning and Teaching
- COMM - Commerce
- CPIT - Complimentary Studies
- CFRF - Creative Non-Fiction
- CRWR - Creative Writing
- CSCA - Computer Science (Faculty of Agriculture)
- CSTG - Computer Science
- CTSM - Contemporary Studies
- DCVT - Diagnostic Cytology
- DENTH - Dental Hygiene
- DENTQ - Dentistry Qualifying
- DENT - Dentistry
- DIIM - Disability Management
- DMUT - Diagnostic Medical Ultrasonic Technology
- ECE - Electrical and Computer Engineering
- ECOM - Electronic Commerce
- ECON - Economics (Faculty of Agriculture)
- ECON - Economics
- EDC - Education
- EFLA - English (Faculty of Agriculture)
- EMDF - Early Modern Studies
- ENGL - Engineering
- ENGL - English
- ENMM - Engineering Math
- ENGN - Engineering (Faculty of Agriculture)
- ENNL - English Language (CE)
- ENV - Environmental Sciences (Faculty of Agriculture)
- ENV - Environmental Engineering
- ENVI - Environmental Studies
- ENVK - Environmental Science
- ERTH - Earth Sciences
- EURO - European Studies
- EXTE - Extension Education
- FOOD - Food Science (Faculty of Agriculture)
- FOSC - Food Science & Technology
- FREN - French
- FRNA - French (Faculty of Agriculture)
- GELA - Geology
- GEOF - Geography (Faculty of Agriculture)
- GENE - Genetics
- GERM - German
- GWSW - Gender and Women’s Studies
- HAHP - Health and Human Performance
- HEED - Health Education
- HESA - Health Administration
- HINF - Health Informatics
- HSTA - History (Faculty of Agriculture)
- HIST - History
- HDPS - Health Professions
- HORT - Horticulture
- HPRD - Health Promotion
- HSCS - Health Sciences Education
- HSTC - History of Science and Technology
- HUCD - Human Communication Disorders
- IACR - International Development (Faculty of Agriculture)
- IDIS - Interdisciplinary Studies
- IENG - Industrial Engineering
- INF - International Food Business
- INFO - Information Management
- INF - Information Science
- INF - Information Technology
- INFA - Interdisciplinary Studies (Graduate)
- INWK - Engineering Interworking
- IPHE - Interprofessional Health Professions
- ITAL - Italian
- JOUR - Journalism
- KINES - Kinesiology
- KINF - King’s Foundation Year Programme
- LAWS - Law
- LEIS - Leisure Studies
- MARI - Marine Affairs
- MARI - Marine Biology
- MATH - Mathematics
- MATE - Materials Engineering
- MATH - Mathematics (Faculty of Agriculture)
- MBDT - Medical Lab Technology
- MDCH - Medical Imaging
- MED - Medicine
- MEDS - Medical Science
- MEK - Medicine
- MICI - Microbiology & Immunology
- MINE - Mineral Resource Engineering
- MTHA - Mathematics (Faculty of Agriculture)
- MUCL - Music
- NENS - Neuroscience
- NUTM - Nuclear Medicine Technology
- NURS - Nursing
- NUTR - Nutrition
- OCCU - Occupational Therapy
- OCEA - Oceanography
- ORAL - Oral & Maxillofacial Surgery
- ORAL - Oral Health Professions
- PENG - Petroleum
- PGIM - Post-Graduate Medicine
- PGPH - Post-Graduate Pharmacy
- PHAC - Pharmacology
- PHAR - Pharmacy
- PHAS - Pharmaceutical Sciences
- PHPP - PHD Program
- PHIL - Philosophy
Undergraduate Programs

Faculty of Agriculture
Bachelor of Agriculture - International Food Business (4 year)
Bachelor of Science (Agriculture) (4 year major)
Bachelor of Science (Agriculture) (4 year double major)
Bachelor of Technology (4 year major)
Diploma in Engineering (2 year)
Diploma in Technology - Business Management (2 year)
Diploma in Technology - Managed Landscapes (2 year)
Diploma in Technology - Plant Science (2 year)
Diploma in Technology - Veterinary Technology (2 year)

Faculty of Architecture and Planning
Bachelor of Environmental Design Studies (2 years)
Bachelor of Community Design (3 years)
Bachelor of Community Design (4 year honours)

Faculty of Arts and Social Sciences
Bachelor of Arts (3 year concentration)
Bachelor of Arts (4 year major)
Bachelor of Arts (4 year double major)
Bachelor of Arts (4 year combined honours)
Bachelor of Arts (4 year honours)
Bachelor of Arts (4 year double major)
Faculty of Management
Bachelor of Commerce (4 year co-op)
Bachelor of Management (4 years)*
Bachelor of Science Recreation/Bachelor of Management (5 years)*
Bachelor of Science Recreation/Bachelor of Management (5 year honours)*
*Also available as an internship program
** Suspension of program pending approval

Faculty of Science
Bachelor of Science/Bachelor of Arts (3 year with minor)
Bachelor of Science/Bachelor of Arts (4 year major)*
Bachelor of Science/Bachelor of Arts (4 year double major)*
Bachelor of Science/Bachelor of Arts (4 year concentrated honours)*
Bachelor of Science/Bachelor of Arts (4 year combined honours)*
Bachelor of Science (4 year multi-disciplinary honours)
Bachelor of Science/Bachelor of Engineering Concurrent (5 years)*
Bachelor of Science (Medical Sciences)
Diploma in Meteorology (1 year)
*Also available as a co-op program
Dalhousie University

Dalhousie University blends the finest academic traditions with innovative thinking and outstanding educational opportunities. Located on Canada’s east coast – an area long known for its natural beauty and friendly people – Dalhousie is a warm and welcoming university that attracts students from around the globe.

Dalhousie has been at the heart of Halifax, Nova Scotia – a lively coastal city – for almost 200 years. The university features both an historic, tree-lined urban campus and a rural agricultural campus, located about an hour from the city.

Dalhousie combines a welcoming atmosphere with the international prestige of a big-name school. With 12 faculties and more than 4,000 classes in over 180 areas of study, the university offers its more than 18,000 students a wealth of choice and innovative degree programs.

Dalhousie encourages student learning through exchange programs, fieldwork, community service and cooperative education. Its collaborative learning environment encourages students to interact with one another and with faculty experts to share ideas and offer new perspectives. A member of the U15, Canada’s elite research-intensive universities, Dalhousie combines the culture of a more intimate undergraduate college with the opportunities of a larger research institution.

This collaborative spirit also extends off campus. Dalhousie conducts research in partnership with teaching hospitals, professional organizations, businesses and industry, non-profit agencies and other universities. As Atlantic Canada’s leading research university, Dalhousie attracts more than $140 million in research grants and awards annually. The university is a world leader in marine-related research and home of the international Ocean Tracking Network. Dalhousie also offers Canada’s first undergraduate program in Ocean Sciences.

Atlantic Canada’s only Faculty of Agriculture, offering programs in areas such as international food business, pre-veterinary medicine and plant sciences, is located at Dalhousie’s Agricultural Campus in Truro, Nova Scotia.

The University of King’s College, situated adjacent to the Dalhousie campus, is an affiliated institution, and its students in arts and science receive Dalhousie degrees in the name of both institutions.

Dalhousie University is a member of the Association of Universities and Colleges of Canada, the Association of Atlantic Universities and the Association of Commonwealth Universities.

Executive Officers

President and Vice-Chancellor
Richard Florizone, BSc, MSc (Saskatchewan), PhD (MIT)

Vice Presidents

Academic and Provost
Carolyn Warren, BSc, MSc, MLS (Western), PhD (TUNS)

Finance and Administration (Acting)
Ian Nason, BComm

External
Floyd W. Dykeman, BA, MPL

Student Services
Bonnie Neuman, BA, MA, EdD

Research
Martha Coops, BA, MSc (A), PhD

Associate Vice-President Academic
Fiona A. Black, BEd, MLS, PhD

Associate Vice-President Academic
Susan Sparrow Wadd, MHA

Associate Vice-President, Research
Mark Filizetti, BSc, MA, PhD

Associate Vice-President, Research
Sofia Newbold, PhD, Peng

Assistant Vice-President, Student Academic Success Services
C. Anne Forrestall, BA, MA

Assistant Vice-President, Ancillary Services
Heather Sutherland, BSc, MEd

Assistant Vice-President, Capital Construction
Peter Cours, Peng, GSC

Assistant Vice-President and Chief Development Officer
Peter Fardy, BA, MBA

Assistant Vice-President, Communications and Marketing
Catherine Ingalls Styles, BA, ABC

Assistant Vice-President, Enrolment Management and Registrar
Ava Kachan, BA, MLS

Assistant Vice-President, Facilities Management
Jeffrey W. Lamb, BEng, MEng (Royal Military College)

Assistant Vice-President, Financial Services (Acting)
Susan Robertson

Assistant Vice-President, Government Relations
Matt Haff, BA, MA

Assistant Vice-President, Human Resources
Katherine Frank, BA, CHRP

Assistant Vice-President, Industry Relations and Executive Director, ILI
Stephen Harren, BComm, MBA

Assistant Vice-President, Information Technology Services
Dwight Fischer, BSc, MSc, EMB

University Legal Counsel
Karen Croome, BA (Hon), JD

University Librarian
Donna Bourne-Tyson, BA, MA, MLS

Deans of Faculties

Agriculture
David Gray, BSc (Hon), PhD, Dean and Campus Principal

Architecture and Planning
Christina Macy, BA (Arts) (California at Berkeley), MArch (MIT), Reg. Arch. (WA)

Arts and Social Sciences
Robert Sweeney-McCoy, AICL (Trinity College, London), BA, MA (Canterbury), PhD (Economics)

Computer Science
Michael Shepherd, BSc, PhD (Western)

Dentistry
Thomas Born, DDS, MId (Dalhousie)
Engineering
L. Joshua Leon, BSc, MSc, PhD (Dalhousie), PEng

Graduate Studies
Bernard Boucher, BSc (UNB), MS (Texas A & M), MPhil, PhD (Yale), FRSC

Health Professions
William G. Wobster, BSc (Hon), MA, PhD

Management
Kim Brooks, BA (Toronto), LLB (UBC), LLM (York)

Law
Kim Brooks, BA (Toronto), LLB (UBC), LLM (York)

Medical
Tom Murray, MD (Dalhousie)

Science
Chris Mozer, BA, PhD (Cambridge, UK)

College of Continuing Education
Andrew Cochrane, BPER, MBA

Executive Directors
Centre for Learning and Teaching
Brad Wuetherick, BA, MA

Office of Institutional Analysis and Research
Mary Jane Jennings, BA (Hons)

Directors
Arts Centre
Peter Dykhuis, BFA

Environmental Health and Safety
Jerry Arganaga, MSc (Moh), CRSP, CHRP

Health Services
Glenn Askland, MD (Dalhousie)

Internal Audit Services
Margaret Stirm, BBA, CA

Sustainability Office
Rochelle Owen, BSc (Hons), MES

Board of Governors
Under the University’s statutes, the Board of Governors is responsible for the operation of the University. The Board consists of representatives named by the Government of Nova Scotia, Senate, the alumni, and students. Internal regulation of the University is the primary concern of the Senate, subject to approval of the Board of Governors.

Chancellor
Dr. Frederick Fountain

Chancellor Emeriti
Dr. Rauben Lehmer
Sir Graham Day

Officers
Dr. Jim Spatz, Chair
Mr. William Black, Vice-Chair
Ms. Joyce Carter, Honorary Secretary
Mr. Lawrence Savory, Honorary Treasurer
Dr. Richard Goldbloom, President and Vice-Chancellor

Members
Mr. Jay Abbas
Ms. Michelle Arndt
Mr. John Baxter
Mr. Burke Black
Mr. Waddi Faras
Dr. Frederick Fountain
Dr. Lloyd A. Fraser
Mr. Robert Harf
Mr. John Houston
Mr. Laurie Jennings
Ms. Sagar Jha
Mr. Laurence Larkin
Ms. Lori MacLean
Ms. George McElhan
Mr. Ibrahim Merdan
Mr. Anthony Palmer
Ms. Sherry Porter
Ms. Paula Simon
Mr. Chris Smith
Mr. Rob Sobey
Ms. Condiee Thomas
Dr. Gail Findlay-Murphy

University Secretary
Ms. Susan Brusseau

Observer for Faculty Association
Dr. Kevin Ganley

Senate
The Senate is the University’s senior academic decision-making body. It is responsible for the approval of new programs and academic units and it manages the reviews of Faculties, Centers and Institutes. Senate approves the granting of degrees and diplomas, including the conferral of Honorary Degrees. It is responsible for setting academic regulations which affect the University as a whole, including regulations governing student conduct and discipline, as well as regulations concerning faculty tenure and promotion.

Senate has 77 members - 52 elected Faculty representatives, 17 academic administrators (President, Vice-President Academic and Provost, Vice-President Research, University Librarian, and the Deans of each faculty), seven students elected by the Dalhousie Student Union (one of whom shall be a graduate student and one who should represent the Agricultural Campus), and a representative from the University of King’s College.

Senate normally meets on the second Monday of each month from 4:00 - 6:00 pm. In addition, if there are sufficient items of business, Senate will meet on the fourth Monday of the month, from 4:00 - 6:00 pm

Chair of Senate
Lloyd A. Fraser, EdD

Vice-Chair (Academic Programs)
Jeff Howard, BEd, PhD

Vice-Chair (Student Affairs)
Alan Pirid, BSc, PhD
Admission Requirements

Dalhousie University is an affirmative action and equal opportunity educational institution. Students who are Aboriginal, Black persons of African descent, or persons with a disability and who do not meet the normal admission requirements may choose to self-identify and request special consideration.

Dalhousie University reserves the right to rescind any acceptance of an applicant into a program or to rescind an offer of admission of an applicant into a program. Please refer to University Regulations, page 20.

1. General Admission Requirements

Applicants must meet the admission requirements as outlined in the appropriate section of this calendar.

1. Place of Residence

For the purpose of admission to the University, the place of residence of a student is the place of domicile. This is normally presumed to be the place (country, province, etc.) where the parents or guardian’s home is located. That place remains unchanged unless the Registrar is satisfied that a change of residence has been established elsewhere.

2. Age Requirement

No person under 16 years of age is admitted to any course except on the specific recommendation of the admissions committee of the relevant Faculty or School, which shall take into account all aspects of the applicant’s preparedness for the course or program involved, and which may attach such conditions to the applicant’s admission as the committee judges appropriate.

3. Students from Canadian High Schools

For general admission to most programs, students require grade 12 level university preparatory English and four additional university preparatory courses. Special attention will be paid to grades in English and mathematics. Final grades in individual university preparatory courses other than mathematics and English must be at least 60%.

Any special or pilot course must have been previously approved by Dalhousie if it is to be used as one of the credits needed for admission.

4. Students from a Community College, College of Applied Arts and Technology (CAAT) or a CEGEP

Applicants who have completed studies in a Community College, College of Applied Arts and Technology (CAAT) or a CEGEP must present a minimum grade of 60%.

Courses may be eligible for transfer credits. Please refer to section 12.

5. Acceptable High School Courses for Admission

- English
- Biology, chemistry, French, geography (or global geography), German, history (or global history), Latin, mathematics, physics, calculus, comparative religion, computer-related studies, economics, environmental studies, Gaelic, geology, journalism, law, music, political science, sociology, Spanish, theatre, drama and other courses provincially coded as academic or advanced.

6. For Students from Quebec

Students attending high schools offering Grade 12 must meet the distribution and average requirements outlined for students from the Atlantic provinces, or first year CEGEP with minimum 70% overall average, with no individual academic subject below 65%.

7. Students from Outside Canada

American High School Curriculum

Students studying in an American-based curriculum (in the United States, or abroad), are required to present a Grade 12 high school average of “C” or better. In addition, students must present a minimum SAT score of 1000 or an ACT score of 23 or better.

British Curriculum (GCE and GCSE)

Students studying in a British-patterned curriculum (GCE) are required to present the General Certificate of Education with at least five subjects. These must include at least two Advanced Level courses (A-levels), or four AS-level courses, with grades of at least “C”. Exceptional candidates may be admitted on A-Level results.

Advanced Placement (AP), Baccalauréat (French Baccalauréat), A-level (GCE) and International Baccalaureate (IB) courses are accepted towards meeting admission requirements. Please refer to the General Admission Requirements section of the Calendar for specific admission requirements. Courses may be eligible for transfer credits. Please refer to section 12.

Admission Requirements by Country

For most countries, we consider the same academic preparation that is required for university entrance in that country - that is, successful graduation from an academic secondary school program or equivalent. View our Admission Requirements by Country chart at www.dal.ca/admissions/international-students/admissions/requirements-by-country.html for more information.

8. English Language Proficiency Requirements

English is the language of study at Dalhousie; therefore all applicants whose first language is not English must provide proof of English proficiency. This requirement can be satisfied with one of the following criteria:

- Test of English as a Foreign Language (TOEFL)
  - TOEFL (computer-based) - 237 with no band below 21
  - TOEFL (paper-based) - 580 with no band below 55
  - TOEFL (IBT) - 80 with no band below 20
- Students must achieve 4.0 or better on the essay or TOEFL Writing Test
- International English Language Testing System (IELTS) - 6.5 with no band below 6.0
- Michigan English Language Assessment Battery (MELAB) - 81
- Canadian Academic English Language Assessment (CAEL) - 70
- Certificate of Proficiency in English (CPE) minimum grade C and Certificate in Advanced English (CAE) minimum grade B
- IB Higher Level English class A1, A2 with a minimum grade of 5 or English B with a minimum grade of 6
- AP English Examination (Language Composition, Literature and Composition) with a minimum grade of 4
- O-Level GCSE or IGCSE English Language or English Literature course with a minimum grade of B
- CanTest of English for Scholars and Trainees (CanTest) - 4.5
- Student must achieve 4.0 or better on the essay or TOEFL Writing Test
- Certificate of English for Scholars and Trainees (CanTest) - 4.5
- Student has graduated from a Dalhousie-recognized school which uses English as the primary language of instruction and the student has spent three successful years in the English program
- Student has studied full-time for at least three years (or equivalent in part-time study) in a secondary school where the language of instruction and examination was English
- Student has studied full-time for at least one year in a recognized university where the language of instruction and examination was English and the course curricula require proficiency in English.

The following Web links will provide more information on English Language proficiency tests:

TOEFL - http://www.ets.org/toefl
IELTS - http://www.ielts.org
MELAB - http://www.melab.org
CAEL - http://www.cael.ca

PLEASE NOTE: Fulfillment of admission requirements does not necessarily provide the prerequisite background for all first year courses. Please consult the course description section of this calendar.
11. Mature Students

Applicants who are Canadian Citizens or permanent residents and 21 years of age or older by the first day of courses, and are not eligible for admission on the basis of regular admission requirements, may apply for admission to some programs as a mature applicant. In order to be eligible, the applicant must either have no university-level study, or have attempted less than one year of transferable coursework. The student cannot have been in full-time university-level study for a minimum period of two years.

Applicants must provide a completed application for admission, high school or post-secondary transcripts, any other relevant documents (e.g. SAT scores, if available), and a letter outlining life and work experience since last attending full-time study. Applicants will be expected to clearly outline their education goals and motivation to succeed at university study. All factors will be considered in the admission decision.

Admission under this policy is restricted to first year of undergraduate programs. Applicants must have completed grade 12 English (or equivalent) with a minimum grade of 65%. Admission to some programs will require completion of other required subjects.

A student admitted on this basis may be restricted in the number of courses he/she can register in during the first year. Otherwise, these students have the same rights, privileges and responsibilities as other students within their program.

12. Transfer Students

Students wishing to apply for transfer credit should consult Academic Regulation 7.2 in this calendar. Certificates of course descriptions from calendars are acceptable in lieu of originals. Certificates in languages other than English or French must be accompanied by certified translations into English. Students applying with one year or less of university work must also submit high school transcripts.

The minimum GPA for admission as a transfer student may vary by program of study. Please contact the Registrar’s Office for more information.

Note: Transfer credit will not be awarded for work completed while a student was academically ineligible.

13. International Baccalaureate (IB), Advanced Placement (AP), Baccalauréat (French Baccalauréat), Advanced Level (GCE) Courses

Students taking any of these courses, may qualify for advanced placement or transfer credits.

Transfer credits will be awarded based on equivalent Dalhousie courses. Credit may be awarded to students with Higher level IB courses with final grades of 5, 6 or 7 or with AP national exam results of 4 or 5. For students with a baccalaureat exam result of 11 or higher on courses with a minimum coefficient of 4, transfer credits may be awarded. Those who have completed A-Level courses with a final grade of C or higher may receive transfer credit.

Students may opt to forgo transfer credit awarded for these programs. To do so, applicants must contact the Registrar’s Office (902) 494-2630.

Lists of equivalent Dalhousie credits that have been previously determined can be found on the Registrar’s Office website. Students wishing to apply for transfer credit should consult Academic Regulation 13.2 in this calendar. Certificates of course descriptions from calendars are acceptable in lieu of originals. Certificates in languages other than English or French must be accompanied by certified translations into English. Students applying with one year or less of university work must also submit high school transcripts.

14. International and Exchange students attending Dalhousie as Visiting Students

International students must meet the following requirements:

• Good academic standing at the home institution
• Written academic approval from the appropriate department head, Dean or designate (e.g., Registrar) to undertake coursework at Dalhousie (written approval is usually in the form of a letter of permission)
• The required visa to study in Canada
• Proof of adequate health insurance for the duration of the stay in Canada
• Proof of proficiency in English

PLEASE NOTE: Students studying for less than one full academic year are restricted from taking full-year courses (see Course Codes and Definitions).

15. Rescission of Acceptance into a Program

Dalhousie University reserves the right to rescind any acceptance of an applicant into a program or to rescind an offer of admission of an applicant into a program. Such rescissions shall be in writing and may be made by the President or the Vice-President (Academic) and Provost, in consultation with the appropriate Dean, at any time prior to the applicant’s registration being confirmed by the Registrar. Any such rescission shall be reported to the Senate in camera.

16. Canadian and Local Students attending Dalhousie as Visiting Students

All students wishing to attend Dalhousie University on a letter of permission from their home university must submit the following:

• A completed application for admission
• Letter of permission from the home university
General Information

12. Admission Requirements

• Students applying from Saint Mary's, Mount Saint Vincent, and NSCAD University are not required to pay the application fee, all other applicants are required to pay the application fee.

At the end of each academic session, grades will be forwarded to Saint Mary's, Mount Saint Vincent, and NSCAD University on the student's behalf. Students from all other universities must arrange for transcripts to be sent to the home university.

II. Specific Program Requirements

A. Faculty of Agriculture

Pre University Study
The Faculty of Agriculture offers pre-university study in Math, Chemistry and Physics. Applicants who do not meet the stated admission requirements in Math or Science may still be admitted to a degree program in the Faculty of Agriculture on the condition that they complete the pre-university level course prior to entering the degree level required subject.

1. Bachelor of Science (Agriculture) & Pre-Veterinary Studies
- English 12
- Pre Calculus Math 12
- Chemistry 12
- Two other acceptable university-preparatory courses at the grade 12 level
- Minimum final grades:
  - English 60%
  - Pre Calculus Math 65%
  - Chemistry 65%
- Overall Average 70%

Applicants in all majors except Agricultural Business, Agricultural Economics and Plant Science will be required to have Physics 12 or to take the preparatory physics on campus prior to enrolling in university level physics.

It is recommended that applicants also take Biology 12, and where available at the high school level, courses in Agriculture or Food Science.

2. Bachelor of Agriculture - International Food Business
- English 12
- Academic Math 12
- Three other acceptable university-preparatory courses at the grade 12 level
- Overall average of 70%

3. Bachelor of Technology

A. Faculty of Agriculture
- English 12
- Math 11
- One other acceptable university-preparatory course at the grade 12 level
- Minimum overall final average of 60%

Applicants to the Equine concentration are expected to be experienced in the care and handling of horses. A Competency Form outlining practical experience and knowledge in the industry is required. This form can be found online at dal.ca/applynow

B. Faculty of Architecture and Planning

1. School of Architecture

1.a. Bachelor of Environmental Design Studies (BEDS)
- English 12
- Pre Calculus Math 12
- Chemistry 12
- Biology 12
- Minimum overall final average of 60%

Applicants who do not meet the minimum academic requirements for admission (two years of university, required courses, 2.5 GPA). All mature students must complete at least one full year at a university. In the application, a Mature Student should describe related work experience and any other pursuits and skills that may serve as grounds for admission.

2.b. Mature Students

An application will be considered from a Mature Student – an individual who will be at least 25 years old at the time of registration in the BEDS program and does not meet the minimum academic requirements for admission (two years of university, required courses, 2.5 GPA). All mature students must have completed at least one full year at a university. In the application, a Mature Student should describe related work experience and any other pursuits and skills that may serve as grounds for admission.

2.c. Post-Secondary Institutions

The Admissions Committee gives priority to applicants with a combination of academic performance and creative ability. Well-rounded personal and academic experience is beneficial, as well as experience in drawing, craft, and computer applications.

2. Minimum Academic Requirements

The minimum requirements for admission are:
- a portfolio of design work that demonstrates creativity and/or artistic skill;
- two years in a university degree program (10 full-year courses, 20 half-year courses, or a combination), with a 2.5 grade point average (B- average), including the following courses:
  - a full-year course (or two half-course) in mathematics or natural sciences, for which Grade 12 math is a prerequisite: e.g., algebra, calculus, trigonometry, biology, chemistry, engineering, physics,
  - a full-year course (or two half-course) in humanities or social sciences: e.g., art history, classics, literature, music, history, philosophy, anthropology, political science, psychology, sociology,
- a half-year course that emphasizes written composition (often designated by a university as “writing requirement” or “writing intensive”)

2. Post-Secondary Institutions

An application will be considered from a Mature Student – an individual who will be at least 25 years old at the time of registration in the BEDS program and does not meet the minimum academic requirements for admission (two years of university, required courses, 2.5 GPA). All mature students must have completed at least one full year at a university. In the application, a Mature Student should describe related work experience and any other pursuits and skills that may serve as grounds for admission.
2. Transfer Students

The School of Architecture welcomes applications from transfer students from other architecture schools in Canada and abroad. Admission and level of entry is based on courses completed elsewhere that are equivalent to required courses at Dalhousie, the level of achievement in the design portfolio, and on the applicant’s total years of university. To meet professional accreditation standards, the School cannot offer a level of entry that would permit a student to obtain the MArch degree with less than six full years of university, including two years of general studies.

3. Documents

A BEDS applicant must submit all of the following items before the application can be reviewed:

1. To be submitted to the Registrar’s Office: Admission, Registrar’s Office
   PO Box 15000
   Dalhousie University
   Halifax, NS B3H 4R2
   • Undergraduate application form
   • Undergraduate application fee (see University Fees in this Calendar)

To confirm receipt of the items above, please contact the Registrar’s Office: (902) 494-2440.

2. To be submitted to the School of Architecture: Admissions, School of Architecture
   5410 Spring Garden Road
   PO Box 15000
   Dalhousie, NS B3H 4R2
   • An official academic transcript from all previous post-secondary institutions
   • A portfolio of design work (about 10-15 items) that demonstrates creativity and/or artistic skill
   • A letter written by the applicant, describing his/her background and interest in architecture and in the BEDS program
   • Two letters of recommendation, including at least one from an academic instructor
   • Evidence of competency in English for applicants whose native language is not English (see University Admission Requirements in this Calendar)

To confirm receipt of the items above, please contact the Architecture Office: arch.office@dal.ca or (902) 494-2440 for additional application instructions, please visit http://archplan.dal.ca

4. Application Deadline

The deadline for undergraduate applications from Canada and all other countries is March 1. Transfer applications are reviewed three times every year: in February, June, and October. For an application to be considered, all items must be received by February 1, June 1 or October 1.

2. School of Planning

2.a Bachelor of Community Design

Admission to the Bachelor of Community Design program is limited. Not all applicants who meet the minimum requirements can be accepted.

Admission to the program is based on academic performance.

High School Applicants

• Satisfactory completion of grade 12 or equivalent with at least five academic university preparatory courses including:
  • English
  • Academic math
  • One science
  • Two additional university preparatory courses
  Biology, geology or geography are recommended courses for students interested in this field. Only applicants with a minimum average of 70% will be considered.

Applicants with Previous Post-Secondary Experience

• Satisfactory completion of the required academic grade 12 subjects as outlined in university level courses in those subject areas.
• Applicants must have a minimum GPA of 2.0.

• All applicants, both high school and transfer, are admitted to the first year of the program. Following admission, a limited number of transfer students may be considered for registration in second year planning courses based on availability of space and level of academic preparation (including number and subject area of course credits transferring from previous post-secondary study) among other requirements. Students must complete the Equalized Program form available from the Registrar’s Office; to be considered for admission to the second year class. For more information, please contact the School of Planning directly.

C. Faculty of Arts and Social Sciences

1. Bachelor of Arts

• English
• Four other acceptable university-preparatory courses
• Minimum final grades:
  • English - 65%
  • Other Subjects - 60%
  • Overall Average - 70%

2. Bachelor of Music, BA Music and other Music degree programs

• Satisfy the requirements for Bachelor of Arts
• Demonstrate proficiency as instrumental or vocal performer in an audition/ interview
• Demonstrate knowledge of the basic rudiments of music theory (roughly equivalent to Grade II theory, Royal Conservatory of Music in Toronto),ural and keyboard skills. Each is assessed through written diagnostic tests as part of the audition/interview.
• Submit the supplementary application form to the Faculty of Music.

It is recommended that students apply early for the purposes of admission, audition, and music scholarship consideration. Audition dates are listed on the supplementary form and all audition procedures should be completed by June 30.

Applicants who, in the estimation of the Auditioning Committee, show considerable musical talent but are in need of more emphasis on preparatory studies will be required to take preparatory courses. Applicants with significant background deficiencies will be advised to seek further preparation through private instruction before applying.

Students wishing to transfer from another institution into the second or third year of their chosen Music program must take validation examinations in music history, theory, aural and keyboard skills, and their applied major instrument before transfer of credits can be considered. Failure to pass an examination will necessitate enrollment in the appropriate first- or second-year course. Validation examinations must be written at the same time as the audition/interview. Transfer applications are subject to the June 1 deadline.

3. Diploma in Costume Studies (two years)

• Satisfy the admission requirements for Bachelor of Arts
• Minimum 65% in Grade 12 English

Students are asked to submit a brief letter outlining their interest in the program, their background in sewing, costume study/design and/or the theatre. University credits will enhance applications. Due to the special nature of this program, transfer credits for university work are not offered.

D. Faculty of Computer Science

1. Bachelor of Computer Science

• English
• Pre-calculus mathematics
• Three other acceptable university-preparatory courses
• Minimum final grades:
  • English and mathematics - 65%
  • Other subjects - 60%
  • Overall average - 70%

2. Bachelor of Informatics

• English
• Academic mathematics
Undergraduate book  Page 14  Wednesday, March 12, 2014  12:03 PM

General Information

which in some instances, may be a requirement for graduation. Students should check with their School/College for details concerning any record checks or screening requirements relevant to clinical, fieldwork, or placements in their particular program. Note that facility requirements may change from time to time and are beyond the control of the University. Students should also be aware that some professional regulatory bodies may require a satisfactory record check as a condition of professional licensure.

1. School of Health and Human Performance

Admission to programs offered by the School of Health and Human Performance is limited. Not all applicants who meet the minimum requirements for admission can be accepted.

1.a Bachelor of Science (Health Promotion)

High School Applicants: Satisfactory completion of grade 12 or equivalent, with a minimum average of 75% in at least five academic university preparatory courses including:

- English (minimum 70%)
- Biology or Chemistry (minimum 70%)
- Three other acceptable university-preparatory courses

Transfer Applicants: Satisfactory completion of the required grade 12 academic subjects as outlined or university level courses in these subject areas.

1.b Bachelor of Science (Kinesiology)

High School Applicants: Satisfactory completion of grade 12 or equivalent, with a minimum average of 70% in at least five academic university preparatory courses including:

- English (minimum 70%)
- Academic mathematics (minimum 70%)
- Students are encouraged to have grade 12 courses in Biology or Chemistry or Physics.

Transfer Applicants: Satisfactory completion of the required grade 12 academic subjects as outlined or university level courses in these subject areas.

1.c Bachelor of Science (Health Promotion)

High School Applicants: Satisfactory completion of grade 12 or equivalent, with a minimum average of 75% in at least five academic university preparatory courses including:

- English (minimum 70%)
- Academic mathematics (minimum 70%)

Transfer Applicants: Satisfactory completion of the required grade 12 academic subjects as outlined or university level courses in these subject areas.

1.d Bachelor of Science (Recreation)/Bachelor of Management

High School Applicants: Satisfactory completion of grade 12 or equivalent, with a minimum average of 70% in at least five academic university preparatory courses including:

- English (minimum 70%)
- Academic mathematics (minimum 70%)

Transfer Applicants: Satisfactory completion of the required grade 12 academic subjects as outlined or university level courses in these subject areas.

Statement Regarding Criminal Records Check

The Faculty of Health Professions at Dalhousie University does not require a Criminal Records Check or other screening procedure (e.g., Vulnerable Sector Screen) as a condition of admission into its programs. However, students should be aware that such record checks or other screening procedures will be required by facilities outside the University used for clinical, fieldwork or co-op placements or experiences related to an academic course assignment which in some instances, may be a requirement for graduation. It is the student’s responsibility to have such procedures completed.

E. Faculty of Engineering

1. Bachelor of Applied Science in Food Science

Admission for this program is currently under review, contact the Registrar’s Office for more information.

2. Bachelor of Engineering

2.a From High School

Experience persons in the workplace may be admitted as mature students.

2.b Transfer Students

Students wanting admission with advanced placement in the BEng degree program are advised that at least one half of the coursework must be completed at Dalhousie including the final two study terms with a full course load.

2.c Associated Universities Transfers

On completion of the Engineering Diploma at an Associated University, a student may be eligible for admission to the Bachelor of Engineering program at Dalhousie. Applicants must complete an Application for Admission form (available from the Registrar’s Office), and submit the application plus an official transcript from their Associated University, verifying completion of the program entrance requirements, to the Registrar by the application deadline.

F. Faculty of Health Professions

Some programs in the Faculty of Health Professions have been established to meet the needs of the Maritime or Atlantic provinces. Admission of applicants outside the preferred region may be limited.

Affirmative Action

The Faculty of Health Professions recognizes that Affirmative Action is required to increase the admission of and number of graduates from underrepresented groups: Aboriginal peoples, African Canadians and Persons with (dis)Abilities. The constituent Units of the Faculty will develop and implement Affirmative Action policies that are consistent with the Human Rights Commission.

As a matter of priority, the Faculty will develop strategies to identify and create recruitment and support systems that will encourage and support members of these underrepresented groups to apply to and graduate from the Faculty of Health Professions.

Statement Regarding Criminal Records Check

The Faculty of Health Professions at Dalhousie University does not require a Criminal Records Check or other screening procedure (e.g., Vulnerable Sector Screen) as a condition of admission into its programs. However, students should be aware that such record checks or other screening procedures will be required by facilities outside the University used for clinical, fieldwork or co-op placements or experiences related to an academic course assignment which in some instances, may be a requirement for graduation. It is the student’s responsibility to have such procedures completed.
Forms and detailed instructions can be found on the School of Health Sciences website: http://www.dal.ca/SHS

1. Selection criteria
The selection criteria used by the Admissions Committee include:
• Place of residence
• Academic performance
• Non-academic performance

1.a Place of Residence
Priority consideration is given to permanent residents of the Maritime provinces (NS, NB, PEI), then to permanent residents of other Canadian provinces/territories and finally to all other applicants.

Applicants are considered to be from the Maritime provinces if:
• The principal residence of the applicant’s parent(s) or guardian is located in the Maritime provinces; or
If the applicant is independent of his/her parent(s) or guardian, he/she must have lived and worked on a full-time basis in the Maritime Provinces for a minimum of one full year and not have attended school on a full-time basis.

1.b Assessment of Academic Performance
Assessment of academic performance based on the applicant's transcripts accounts for 80% of the applicant's overall total score.

High School Applicants
• Completion of academic Grade 12 with at least five Grade 12 university preparatory courses, including:
  • English
  • Academic Math
  • Two Sciences
  • Diagnostic Cytology: Biology, Chemistry

Admission to this program is currently under review. Contact the Registrar's Office for more information.

The selection criteria used by the Admissions Committee include:
• Completion of courses in English, Math and two sciences as outlined above for high school applicants. If these courses were not taken part of post-secondary study, they must be at the academic Grade 12 level with a minimum grade of 70%.
• A minimum grade of C in the required subjects if taken at the post-secondary level.
• Minimum cumulative GPA of 2.75 or in most recent year of full-time studies.

1.a Assessment of Non-Academic Performance
Assessment of non-academic performance accounts for 20% of the applicant's overall total score.

A letter of intent and resume are required. Forms and detailed instructions can be found on the School of Health Sciences website: http://www.dal.ca/SHS

Applicants will be assessed on the following non-academic criteria:
• Demonstrated knowledge of the selected health profession
• Leadership
• Community involvement
• Teamwork

1.d Special Circumstances
In exceptional situations, special consideration may be given by the Admissions Committee to applicants who do not meet all admissions requirements. Applicants will be required to submit a letter stating the reasons for special consideration.

2. Personal Suitability
Students in the professional streams included in the BHSc program work with clients who trust them to provide safe and competent care. A criminal records check will be required for only those students accepted into the BHSc program.

1. Affirmative Action
In keeping with the Dalhousie University Faculty of Health Professions Affirmative Action Policy, the School of Health Sciences is committed to increasing the number of students who identify as African Canadian, Aboriginal Peoples and persons with disabilities.

Applicants wishing to apply under the Affirmative Action Policy must indicate on their admissions application and meet the minimum admission requirements.

4. Application Submission
Application form, fee and all official transcripts should be sent to the Registrar’s Office.
All other supporting documents should be sent directly to the School of Health Sciences.

Application deadline is February 15.

Applicants must submit the following:
• Completed application form and fee
• For high school applicants, an official high school transcript
• For other applicants, an official transcript from all previous post-secondary institutions
• Letter of intent
• Resume

Forms and detailed instructions on the School of Health Science website: http://www.dal.ca/SHS

5. Notification
Each applicant is notified of their status upon application by mail, normally by the end of April. Those applicants who are put on the waiting list may expect to hear about acceptance as late as September.

6. Deposit Fee
A non-refundable deposit of $200 (applicable to tuition fees) is required within three weeks of receipt of written notification of acceptance in order to reserve a place in the program.

2.b Bachelor of Health Sciences (Post-Diploma Program)
The Bachelor of Health Science, Post-Diploma program, is a configuration of the BHSc developed for practitioners in the following professional streams:
• Diagnostic Cytology
• Diagnostic Medical Ultrasonound
• Medical Laboratory Technology
• Nuclear Medicine Technology
• Radiological Technology
• Respiratory Therapy

The objective of the post-diploma program is to provide registered technologists and therapists the opportunity to obtain a degree in health science. It is not intended as an opportunity to merely refresh skills or competencies.

The program comprises 60 credit hours of university study (equivalent to two years full-time study). In recognition of the reality that potential students are likely to be working full-time, the program is available on a part-time basis.

Note: Respiratory Therapists wishing to apply to the Anaesthesia Assistant Certificate (AAC) must fulfill the admission requirements and follow the process for application to the Post-Diploma Program.
(Admission for 2014-2015 has been suspended)
1. Admission Requirements
   • Successful completion of a diploma program in the profession for which you are applying*
   • Two years of post-diploma work experience in that profession
   • Evidence of good standing with the applicable Canadian professional association or college.
   • For Diagnostic Medical Ultrasound, completion of advanced training in ultrasound following a diploma in another allied health profession, plus at least two years work experience in ultrasound, may be substituted.
2. Documentation Required
   • Completed Dalhousie application form plus application fee (see Application for Admission form)
   • Official transcript of diploma program, plus official transcripts from any other post-secondary institution attended
   • Current registration number with applicable Canadian professional association or college, or photostat copy of current membership card
   • Letter of intent
   • Resume with two contact references (two letters of reference for AAC program)
3. Guidelines for Letter of Intent
   This letter provides the opportunity for applicants to expand upon their experience, any advanced or specialty education they may have and their interest in undertaking university studies.
4. School of Health Administration
   3.a Diploma in Health Services Administration
      Applicants must meet the Dalhousie University undergraduate admission requirements. It is recommended that students not apply directly from High School and have work or volunteer experience in the Health Services industry. A complete application consists of the following documents:
      • Application and fee
      • An official transcript from high school and previous post-secondary institutions
      • One letter of reference
      • Resume
   3.b Diploma in Emergency Health Services Management
      Applicants must meet the Dalhousie University undergraduate admission requirements. It is recommended that students not apply directly from High School and have work or volunteer experience in the Health Services industry. A complete application consists of the following documents:
      • Application and fee
      • An official transcript from high school and previous post-secondary institutions
      • One letter of reference
      • Resume
   4. School of Nursing
   4.a Bachelor of Science (Nursing) - Four Year
      Admission to the Bachelor of Science Nursing program is limited. Not all applicants who meet the minimum requirements can be accepted.
      Requirements differ based on the previous education and background of the applicant.
      1. Selection criteria
         The selection criteria used by the Admissions Committee include:
         • Place of residence
         • Academic performance
   3.a Place of Residence
      Owing to the limited enrolments and the large number of applicants, this program primarily serves permanent residents of Nova Scotia but each year a limited number of places are also available for well-qualified residents of other Canadian provinces and international students.
      Applicants are considered to be from Nova Scotia if:
      • The principal residence of the applicant’s parent(s) or guardian, he/she must have lived and worked in a full-time basis in Nova Scotia (not attending school on a full-time basis) for a minimum of one full year; or
      • The applicant, or his/her parent(s), guardian or spouse does not meet the preceding requirements as the direct result of a recent employment transfer in or out of Nova Scotia.
   3.b Academic performance
      High School Applicants
      • Satisfactory completion of grade 12 or equivalent with at least five academic university preparatory courses including:
        • English
        • Biology
        • Chemistry
        • Academic Math
        • A minimum grade of 70% in the required subjects.
        • A minimum overall average of 70% in the five university preparatory courses used to meet admission requirements.
      Applicants with Previous Post-Secondary Experience
      • A minimum grade of 70% in the required academic grade 12 subjects as outlined above for High School applicants; or
      • A minimum grade of B+ in the required subjects at the Post-Secondary level.
      • A minimum cumulative GPA of 2.5 based on overall Post-Secondary career or most recent year of studies (30 credit hours).
5. Notification
   In exceptional circumstances, special consideration may be given by the Admissions Committee to applicants who do not meet all admission requirements. These decisions are at the discretion of the Admissions Committee and are not subject to appeal.
   3. Affirmative Action
      The School of Nursing has an Affirmative Action Policy for residents of Nova Scotia who belong to the indigenous Black and Aboriginal population. Applicants wishing to apply under the Affirmative Action Policy must indicate on the self-identification section of the application form. Applicants must meet the minimum admission requirements.
   4. Final Date for Receipt of Applications for Admission
      March 15
   5. Notification
      Each applicant is notified of the status of their application by mail, normally by the end of May. Those applicants who are put on the waiting list may expect to hear about acceptance as late as September. Incomplete and late applications will not be considered.
   5.a Bachelor of Science (Nursing) (Arctic Nursing)
      A program for Inuit is available. Please contact the School of Nursing for information.
   6. Deposit Fee
      Due to the large number of applications a non-refundable deposit of $200 (applicable to tuition fees) is required on admission.
      For High School students the $200 deposit is payable by May 15 in order to reserve a place in the program.
      For all other applicants the $200 deposit is payable within three weeks of receipt of written notification of acceptance in order to reserve a place in the program.
      The following guidelines have been established for the School of Nursing: if the deposit is not received by the deadline the place will be offered to another applicant without further notice. Students who have paid their deposits but who

16 Admission Requirements
have not appeared at the School of Nursing by the first day of the Orientation Program will be considered to have withdrawn from the School unless they have written permission from the Admissions Committee.

5. College of Pharmacy

a. Bachelor of Science (Pharmacy)

Applicants to the BSc Pharmacy program must fulfill the requirements of a first year BSc at Dalhousie University as outlined in the Degree Requirements section of this calendar. Equivalent subjects from other universities will be given equal status for purposes of determining admission.

Courses required for admission are the following Dalhousie courses:

- CHEM 1011.03/1012.03 or 1021.03/1022.03
- MATH 1000.03 or 1215.03
- SCIS 1060.03 or 2060.03
- BIOL 1010.03/1011.03 or BIOL 1020.03/1021.03
- ENGL 1005.Y or 1016 or any two English courses designated as a writing requirement (ex. ENGL 1010.03, 1020.03, 1040.03, 1050.03 or 100.03 or equivalent)
- Six credit hours or three free credit hour courses in any Social Science subject
- Minimum grade of 70% in each prerequisite course
- Applicants must present at least one year of study in which they successfully complete five full credits of study (30 credit hours) over the fall and winter terms.

Transfer credits will not be granted for students who exceed the minimum admission requirements. The problem-based curriculum which integrates science, pharmaceutical science and pharmacy practice requires that students will complete all coursework in the four year program.

Incomplete applications and applications submitted after the deadline, February 1 (see Application Dates for details), will not be considered.

1. Selection Criteria

The selection criteria used by the Admissions Committee include:

- Place of residence
- Academic performance
- Assessment of non-academic criteria

A score out of 100, is calculated for each applicant based on academic performance and assessment of non-academic criteria.

1.a. Place of Residence

This is the only College of Pharmacy for the Maritimes and therefore preference is given to Maritime applicants. Attendance at a Maritime university does not, by itself, constitute having established residence in the Maritime provinces.

Applicants are considered to be from the Maritimes if:

- The principal residence of the applicant’s parent(s) or guardian is located in the Maritime provinces, or
- The applicant (or spouse) has been employed full-time in the Maritime provinces for the preceding 12 consecutive months.

Applicants whose parent(s), guardian or spouse do not meet the residency requirements as a direct result of a recent employment transfer either into or out of the Maritime provinces would not necessarily be expected to conform to the above guidelines.

Exceptions to these guidelines will be considered on an individual basis. Residence will be determined for each applicant on February 1st of the year for which admission is being sought.

A limited number of students from outside the Maritimes are accepted into the College of Pharmacy on a competitive basis so that the ability to obtain consistently better than average applicants’ overall total score.

The assessment of non-academic criteria accounts for 40% of the applicants’ overall total score.

2. Notification

Applicants will be informed of the status of their application no later than late July. Those applicants who are put on the waiting list may expect to hear about acceptance as late as September.

3. Deposit Fee

In addition to the deposit requirement (page 14), the following guidelines have been established for the College of Pharmacy: if the deposit is not received, the place will be offered to another applicant without any further notice.

Students who have paid their deposits but who have not appeared at the College by the first day of the College of Pharmacy Orientation Program will be considered to have withdrawn from the College unless they have written permission from the Admissions Committee.

4. Special Cases

In exceptional circumstances, special consideration may be given to applicants who do not meet all admission requirements. These decisions are at the discretion of the Admissions Committee and are not subject to appeal.

5. Affirmative Action

The College of Pharmacy has an Affirmative Action Policy for residents of the three Maritime provinces who belong to the African Canadian and Aboriginal populations. Applicants wishing to apply under the Affirmative Action Policy must check “yes” on the Supplemental Form. Applicants must receive a minimum of 65% in each of the five prerequisite courses.

6. School of Social Work

a. Bachelor of Social Work

The study and practice of social work is intellectually, emotionally and physically demanding. It is important for potential applicants to be familiar with the expectations and ethics of the profession before applying to the Bachelor of Social Work program in order to self-assess for readiness. This material can be found on the websites for the Canadian Association of Social Workers and the Canadian Association for Social Work Education.

Admission to the Bachelor of Social Work degree is limited. Not all applicants who meet the minimum requirements can be accepted. A limited number of places are offered once a year to the most qualified candidates as selected by the School’s Admissions Committee. Equal consideration is given to part-time and full-time applicants. Applicants indicate if they are applying for on-site or distance study and the applications for each delivery method are given separate full-time applications. Students who fail to complete five full credits of study (30 credit hours) over the fall and winter terms.

Exceptional circumstances may be considered on an individual basis. Residency will be determined for each applicant on February 1st of the year for which admission is being sought.

A limited number of students from outside the Maritimes are accepted into the College of Pharmacy on a competitive basis so that the ability to obtain consistently better than average applicants’ overall total score.

The assessment of non-academic criteria accounts for 40% of the applicants’ overall total score.

2. Notification

Applicants will be informed of the status of their application no later than late July. Those applicants who are put on the waiting list may expect to hear about acceptance as late as September.

3. Deposit Fee

In addition to the deposit requirement (page 14), the following guidelines have been established for the College of Pharmacy: if the deposit is not received, the place will be offered to another applicant without any further notice.

Students who have paid their deposits but who have not appeared at the College by the first day of the College of Pharmacy Orientation Program will be considered to have withdrawn from the College unless they have written permission from the Admissions Committee.
Admission Requirements

General Information

18  Admission Requirements

2. Application Process
Application and all supporting documents must be received by February 15. Please visit http://www.socialwork.dal.ca for detailed instructions on how to prepare and submit your application.

Applications for admission are assessed once a year and enrolment is in September only. Each applicant is notified by mail of the Admissions Committee's final recommendation to the University Registrar.

The BSW application is self-administered. The application can be downloaded including detailed instructions and forms for completing the application process. A full application includes the following (Note: only two out of the three references are required):

• Dalhousie Undergraduate Application for Admission
• BSW Application Information and Instructions
• BSW Applicant's Checklist, Part I
• BSW Form Personal Statement Cover Sheet
• BSW Form Recommendation 1: Academic
• BSW Form Recommendation 2: Work
• BSW Form Recommendation 3: Volunteer
• BSW Form Work & Volunteer Experience Summary

2a. Affirmative Action
The School of Social Work has an affirmative action policy for applicants who are Acadian, Aboriginal, African Canadian, members of other racially visible groups, persons with (dis)Abilities and for Lesbian, Gay, Bisexual, Transgender, Two-Spirit, Queer and intersex (LGBTTQI) people. The school is committed to admitting and graduating the highest possible number of students who qualify under this policy. Members of these groups who have five general (non-social work) university credits that average B- are encouraged to apply under this policy. Applicants make their request in a place provided on the Social Work Statement cover sheet, which is part of the BSW application package. Each candidate is considered individually on the basis of her/his qualification, rather than in relation to other applicants. The admissions prerequisites and selection criteria are otherwise the same for all candidates.

3. Selection criteria
The selection criteria used by the Admissions Committee include:

• academic achievement
• work and volunteer experience
• references
• social work statement

Interviews are not part of the admission process unless specifically requested by the Admissions Committee.

3.1 Academic Achievement
An initial screening is made on the basis of academic achievement. Grades from the last 60 credit hours attempted (equivalent to two years of full-time study), including failures, are used to determine the cumulative admission average. Repeated courses with lower grades will be excluded from the GPA calculations. Courses from non-university programs, including college level courses, do not qualify for consideration and are not included in the cumulative university average. A minimum cumulative GPA of 2.7 (B- or 70%) is necessary for an application to be considered.

3.2 Relevant work and/or volunteer experience
Relevant work and/or volunteer experience in areas of social or human services that bear a direct relationship to social work can contribute meaningfully to the applicant's preparation for social work practice.

3.3 References
The BSW application requires two out of the following three reference forms: (academic, work, volunteer). These assist the Admissions Committee in assessing the candidate's personal suitability and readiness for professional education in social work.

3.4 Social Work statement
Candidates write a statement that asks them to discuss a current social issue and their motivation to study social work. This also assists the Admissions Committee in assessing the candidate's personal suitability and readiness for professional education in social work.

3.5 Canadian Residency Requirement for Distance Study
The online (distance delivery) option is only available to residents of Canada as defined by Canada Customs and Revenue Agency.

4. Studying by Distance Delivery
Taking a social work degree via distance delivery in your own community will give you access to a challenging, top quality, accelerated education in social work. You will have access to a well-structured, web-based learning environment and have opportunities to apply new learning in supervised field work. Courses are delivered through an on-line learning management system known as Blackboard. Students are expected to participate in ongoing discussions in the courses. This requires students to post comments on the course discussion boards, to respond to other students' postings, and to work in small groups as required. The web-based courses provide the opportunity for a high-level of interactivity amongst students and between students and instructors. Please note that this delivery method differs significantly from correspondence courses. Regular ongoing access to a home computer is essential for effective interactivity in your courses.

If you are thinking about studying by distance we suggest you visit http://www.distanceeducation.dal.ca.

G. Faculty of Management

1. Bachelor of Commerce Co-op

• English
• Academic mathematics **
• Three other acceptable academic courses
• Minimum final grade: English, Math - 70%.
• Other subjects - 60%
• Overall Average - 75%

** Required Math for Commerce:
• NS - Math 12 (academic or advanced) or Pre-Calculus 12 or Calculus 12
• PEI - Math 621 or 631
• NB - Math 120, 121, 122
• NF - Math 30D, 30E or 320T
• Western Canada - Math 12, Math 30, Math 31, Math 40
• Ontario - MDM4U or MHF4U or MCV4U or MCA

Transfer Students

Transferring into the Dalhousie Commerce Co-op Program from another university program is usually quite easy, and we endeavour to give such students as many transfer credits as possible.

Regardless of what program in which they were previously enrolled, students who have earned at least four credit hours courses (or eight credit hours courses) in the following areas will usually be able to enter directly into the second year of Commerce Co-op at Dalhousie:

• Business in a Global Context (half-year course)
• Introduction to Financial Accounting (half-year course)
• Business Communications (written) (half-year course)
• Micro-Economics (half-year course)
• Core Business Applications (Computer Science) (half-year course)
• Business Communications (written) (half-year course)
• Business in a Global Context (half-year course)
• Western Canada - Math 12, Math 30, Math 31, Math 40
• Ontario - MDM4U or MHF4U or MCV4U or MCA

Otherwise, students will normally be placed in the first year of the program, but may be able to use transfer credits to reduce their course loads during some of their terms.

Transfer to the Bachelor of Commerce Co-op Program will not be allowed after September of the second year. Students transferring into this program will be assessed a co-op transfer fee.

Students transferring into the Bachelor of Commerce Co-op Program should note:
1. In order to ensure that all students pay the same co-op fees, students who transfer into the second year of the Bachelor of Commerce Co-op Program will be charged a transfer fee equivalent to the co-op fee that would have been paid in the first year of the program.
2. Due to the co-op structure of the program, a minimum of three years in the Dalhousie program will be required in order to complete the Commerce Co-op degree.
III. Application Submission

It is the responsibility of each applicant to ensure that the application file is complete. The following must be submitted by each applicant to the Registrar’s Office:

- A completed application form
- The appropriate application fee for the program (refer to Application for Admission form)
- For students applying directly from high school, an official record of high school work
- An official academic transcript from all previous post-secondary institutions (if applicable)
- Evidence of competency in English for applicants whose first language is not English (see Section 7 on English Language Tests, page 10)
- Supplementary information as required for specific programs
- Mature applicants should also enclose a letter

Documents, once submitted, become the property of Dalhousie University and cannot be returned.

1. January Admissions

Admission of first-year students in January is not recommended because the number of introductory courses in the winter term is very limited. Part-time students and transfer students may be admitted for courses beginning in January in BA, BSc, BEDS, and Special Student programs. The application deadline for January admission is November 15.

2. Response to Applications

Dalhousie will respond to your application as promptly as possible and will advise you of any missing documentation. Please notify the Registrar’s Office if your address changes.

When documentation is complete, applications are forwarded to the appropriate admissions committee. Although every effort is made to obtain decisions quickly, there will be some delay at times, particularly with limited enrollment programs.

As soon as decisions are made, applicants will be advised by mail.

3. Early acceptance

Applicants currently attending high school, who have good academic records and a competitive admission average may be given early acceptance, conditional on satisfactory completion of work in which they are currently enrolled.

4. Final acceptance

Applicants must successfully complete high school courses in the required subjects with a minimum average of 70%. An official transcript of final grades must be submitted to the Registrar’s Office by August 1st.

** Required Math for Bachelor of Management:
- NS - Math 12 academic or advanced or pre-calculus
- PEI - Math 12B or Math 12C
- NL - Math 12B, 12C, 12D
- NF - Math 2102 or Math 2205 or 2102
- Western Canada - Math 30/MATH 31/Math 40
- Ontario - Math MDM4U or Mhf4U or MCV4U

** Subject to final MPHEC approval

II. Bachelor of Science

1. Bachelor of Science and Bachelor of Science Co-op

   - English
   - Pre-Calculus Math
   - Three other acceptable university-preparatory courses
   - Minimum final grades:
     - English, Math - 65%
     - Other subjects - 60%
     - Overall Average - 70%
   - English, Math - 80%
   - Other subjects - 60%
   - Overall Average - 80%
   - It is recommended that students take two science subjects.

2. Bachelor of Science (Medical Sciences)*

   - English
   - Pre-Calculus mathematics
   - Three other acceptable university-preparatory courses
   - Minimum final grades:
     - Mathematics 80%
     - Pre-Calculus - 80%
     - Overall Average - 80%
   - Subject to final MPHEC approval

3. Integrated Science Program (DISP)

   - Satisfy requirements for Bachelor of Science
   - At least one grade 12 science course
   - Minimum grades:
     - English 75%
     - Mathematics 80%
   - Overall average 80%

4. Diploma in Meteorology

   - For students entering from another university, a 15 credit BSc or preferably, a 20 credit BSc, in physics or mathematics or chemistry with appropriate physics courses
   - Strong background in mathematics and physics
   - Courses taken should also include statistics and computer science
   - Dalhousie also offers an integrated program that leads to a BSc in physics (20 credits) and the Diploma in Meteorology. (See the Physics and Atmospheric Science Department entry, page 558 for details.)

I. Faculties of Dentistry, Law, Medicine, and Graduate Studies

For information concerning admission into these faculties, consult the appropriate calendar, or contact the appropriate faculty office directly.
University Regulations

General
1. The Senate is charged with the internal regulations of the University, including all matters relating to academic affairs and discipline, subject to the approval of the Board of Governors. Within the general policies approved by Senate, academic requirements are administered by the Faculty concerned.
2. All students must agree to obey all the regulations of the University already made or to be made. Students must also comply with the regulations of the Faculty in which they are registered, and pay the required fees and deposits before entering any course or taking any examinations. Additionally, students are advised that this Calendar is not an inclusive set of rules and regulations but represents only a portion of the rules and regulations that will govern the student’s relationship with the University. Other rules and regulations are contained in additional publications that are available to the student from the Registrar’s Office and/or the relevant Faculty, Department or School.
3. Students are bound by the regulations of the home faculty regardless of the faculty in which the student takes courses.
4. Students should be aware that certain courses at the University involve required laboratory work where potentially hazardous materials are in use. These may include animals, other biological materials which may include cryo and products, tissues, fluids, waste, but also microorganisms and toxins as well as a wide variety of chemicals. Examples of physical hazards may include noise, radioactive isotopes and non-ionizing radiation (e.g. lasers). Since there are potential health risks associated with the improper handling of such materials resulting in exposure, Dalhousie University requires that, as a condition of taking a course where such materials are to be used, students must read and agree to comply with the instructions for the safe handling of such materials. In the event that students do not comply with the instructions for the safe handling of such materials, students will receive no credit for the required laboratory work unless other acceptable alternatives are approved by the instructor. In many cases, alternate arrangements are not possible and students should consider enrolling in a different course.

Rescission of Acceptance into a Program
Dalhousie University reserves the right to rescind any acceptance of an applicant into a program or to rescind an offer of admission of an applicant into a program. Such rescission shall be in writing and may be made by the President or the Vice-President (Academic) and Provost, in consultation with the appropriate Dean, at any time prior to the applicant’s registration being confirmed by the Registrar. Any such rescission shall be reported to the Senate in camera.

Official Examination Regulations
1. Candidates will not be admitted to the Examination Room more than thirty minutes after the beginning of the examination. Candidates will not be permitted to leave the examination within the first 30 minutes.
2. Candidates are required to present their valid Dalhousie ID card at all examinations scheduled during the official examination periods and sign the signature list when used.
3. No articles such as books, papers, etc. may be taken into the examination room unless permission has been made by the examiner for reference books and materials to be allowed to the students. All electronic computing, data storage, electronic dictionary and communication devices must be turned off, placed and sealed in the opaque storage bag on the exam writing surface. Calculators may be used at discretion of the instructor.
4. Candidates may not leave their seats during an examination except with the consent of the invigilator.
5. If more than one book is used, the total number should be marked in the space provided above. The other books should be properly marked and placed inside the first book. All books supplied must be returned to the invigilator.
6. Candidates found communicating with one another in any way or under any pretext whatever, or having unauthorized books, papers, electronic computing, data storage, or communication devices in their possession, even if their use be not proved, will be investigated by the Chief Invigilator. A written report will be submitted to the Faculty Academic Integrity Officer.
7. After the first thirty minutes have elapsed, students may hand in their examination book(s) to an invigilator and quietly leave the examination room.

Policy in the Event that a Formal Examination Cannot be Completed at the Regularly Scheduled Time
Formal examinations, up to three hours in length, are scheduled by the Registrar each December and April during formal examination periods, as laid out in the Calendar. If, in the unusual event that one of these examinations must be postponed or abandoned at short notice, the following policies will apply.
1. If more than 50 percent of the time allocated for the examination has elapsed, students’ work up to the premature and of the examination, but permitted for the actual time written, will lead to the mark to be obtained from the formal examination.
2. If less than 50 percent of the time allocated for any examination has elapsed, the examination will be rewritten as soon as possible, normally on a day when examinations are not scheduled. Students will be informed by the Registrar of the time and place of the rewrite on the Website of the Registrar (http://www.dal.ca/exams).

Formal examinations, up to three hours in length, are scheduled by the Registrar each December and April during formal examination periods, as laid out in the Calendar. If, in the unusual event that one of these examinations must be postponed or abandoned at short notice, the following policies will apply.
1. If more than 50 percent of the time allocated for the examination has elapsed, students’ work up to the premature and of the examination, but permitted for the actual time written, will lead to the mark to be obtained from the formal examination.
2. If less than 50 percent of the time allocated for any examination has elapsed, the examination will be rewritten as soon as possible, normally on a day when examinations are not scheduled. Students will be informed by the Registrar of the time and place of the rewrite on the Website of the Registrar (http://www.dal.ca/exams).

In all cases in which a formal examination cannot be written at its scheduled time and special arrangements must be made, it is essential that faculty ensure that all students in the course are treated fairly and equitably and according to the evaluative criteria in the course description given to students at the beginning of the term. If an examination is terminated as under point #1, any student who feels disadvantaged by not having been able to write an examination for the length specified in the course description, may appeal through the appropriate departmental or school appeal mechanism for an examination of the specified length. Appeals will be investigated by the Dean and in a timely fashion. If an appeal is granted, arrangements for such a makeup examination will be made between the student and the course instructor.

If a formal examination cannot be written at its scheduled time, it is the responsibility of students to check the Registrar’s Website for when the examination will be rewritten. Announcements will be made as soon as possible after the original time, normally within 24 hours, and results will normally take place within the regular examination period.

Policy for the Scheduling of Courses/Examinations
Normally, the University schedule and conducts courses on weekdays, i.e., Monday to Friday, and sometimes Saturday, and examinations on weekdays and Saturdays, but not Sundays or statutory holidays. No examinations or courses should be scheduled on Good Friday, Easter Saturday or Easter Sunday. Otherwise, exams will be scheduled full days Monday through Thursday and Saturday, Friday until 3 pm, and sometimes Sunday after 12 noon. However, the University reserves the right, in exceptional circumstances and with the approval of Senate, to schedule courses or examinations on Sundays or statutory holidays, as the case may be.

Requests for an Alternative Final Examination Time
A student requesting an alternative time for a final examination will be granted if request is only in exceptional circumstances. Such circumstances include illness (with medical certification) or other mitigating circumstances outside the control of the student. Elective arrangements (such as travel plans) are not considered acceptable grounds for granting an alternative examination time. In cases where it is necessary to make changes to examination arrangements late in the term, or Senate has approved exceptional examination arrangements, a special effort will be made to accommodate difficulties the change may cause for individual students.
The decision whether to grant a student’s request for an alternative examination time lies with the instructor of the course concerned as does the responsibility for making the alternative arrangements.

This policy may also be applied at the discretion of the instructor to tests and examinations other than final examinations.

### Retention of Student Work

**Faculties of Architecture and Planning and Engineering**

All work submitted by students as part of their academic work in the Faculties of Architecture and Planning and Engineering automatically becomes the property of the University and may be retained for exhibition or other purposes at any time and for an indefinite period.

**Faculty of Computer Science**

The Faculty of Computer Science has the right to retain the original or a copy of any work handed in by students. This will only be used for evaluation or for administrative purposes. The permission of the originator of the work is required if it is to be used in any other way.

**Communication with Students**

1. All students must report their local address while attending the University to the Registrar’s Office, on registration or as soon as possible thereafter. Subsequent changes must be reported promptly. This may be done online at [http://deanfacl.dal.ca](http://deanfacl.dal.ca).
2. Email is an authorized means of communication for academic and administrative purposes within Dalhousie. The University will assign all students an official email address. This address will remain in effect while the student remains a student and for one academic term following a student's last registration. This is the only email address that will be used for communication with students regarding all academic and administrative matters. Any redirection of email will be the student’s own risk. Each student is expected to check her or his official email address frequently in order to stay current with Dalhousie communications.
3. Students who change their name while attending Dalhousie must provide proof of name change to the Registrar’s Office.

### Freedom of Information and Protection of Privacy

**The Freedom of Information and Protection of Privacy Act (FOIPPO) provides for the protection of an individual’s right to privacy but also requires that certain records be disclosed upon request unless they are exempted from disclosure. The Act requires that the University disclose personal information if that information would constitute an unreasonable invasion of personal privacy.** Applicants to Dalhousie are advised that information they provide along with any work handed in by students will be retained for evaluation or for administrative purposes. The Faculty of Computer Science has the right to retain the original or a copy of any work handed in by students. This will only be used for evaluation or for administrative purposes. The permission of the originator of the work is required if it is to be used in any other way.

### Release of Information About Students

The following information is available, without application through the Freedom of Information and Protection of Privacy Act:

**I. Disclosure to students of their own records**

1. A transcript is a complete history of a student’s academic record at Dalhousie. Partial transcripts, e.g., a portion of a student’s record pertaining to registration in a particular degree, faculty or level of study only, are not issued.
2. Students have the right to inspect their academic record. As an employee of the Registrar's Office will be present during such an inspection.
3. Students will, on submission of a signed request and payment of a fee where applicable, have the right to receive transcripts of their own academic record. These transcripts will be marked “ISSUED TO STUDENT.” Official transcripts will be sent on a student’s request to other universities, to business organizations, etc. The University will not release copies of transcripts if students owe monies to the University.
4. Transcripts are issued for a student while a student discipline case is pending and the committee subsequently makes a decision that affects the student’s transcript, revised transcripts will be sent to recipients if transcripts are issued while the case was pending.

**II. Disclosure to Faculty, Administrative Officers, and Committees of the University**

Information on students may be disclosed without the consent of the student to University officials or committees deemed to have a legitimate educational interest.

**III. Disclosure to Third Parties**

1. The following information is considered public information and may be released without restriction:
   - Name
   - Period of Registration
   - Certificates, Diploma, Degrees awarded
   - Field of Study (as relates to degree awarded)
   - Home town and Award Distinctions
   - As indicated in the conversation program.

2. Information will be released without student consent to persons in compliance with a judicial order or subpoena or as required by federal or provincial legislation.

3. Necessary information may be released without student consent in an emergency, if the knowledge of that information is required to protect the health or safety of the student or other persons. Such requests should be directed to the Registrar.

4. In compliance with Statistics Canada requirements, a student's personal identification number assigned by the university or college that attended will eventually appear on a student’s transcript of record.

5. The Federal Statistics Act provides the legal authority for Statistics Canada to obtain access to personal information held by educational institutions. The information may be used only for statistical purposes, and the confidentiality provisions of the Statistics Act prevent the information from being released in any way that would identify a student. Students who do not wish to have their information used are able to ask Statistics Canada to remove their identifying information from the national database by contacting us by:
   - Email: PSS-SIEP_contact@statcan.gc.ca
   - Mail: Institutional Surveys Section
   - Centre for Education Statistics
   - Statistics Canada, Main Building
   - SC2100-K Tunney’s Pasture
   - Ottawa, ON  K1A 0T6

   Students should also be aware that the Maritime Provinces Higher Education Commission (MPHEC) collects data on behalf of Statistics Canada, and that it uses the data for similar purposes. Statistics Canada will notify the MPHEC of any student choosing to have their personal information removed from the national database, and their information will subsequently be removed from the MPHEC database.

   Further information on the use of this information can be obtained from the Statistics Canada Website: [http://www.statcan.gc.ca](http://www.statcan.gc.ca)

   6. Other than in the above situations, information on students will be released to third parties only at the written request of the student, where the student has signed an agreement with a third party, one of the conditions of which is access to her/his record (e.g., in financial aid). This restriction applies to requests from parents, spouses, credit bureau and police.

### Accommodation Policy For Students

Dalhousie University recognizes the diversity of its students and is committed to providing a learning environment and community in which students are able to participate without discrimination on grounds prohibited by the Nova Scotia Human Rights Act. In particular, the University is committed to facilitating students’ access to the University’s academic programs, activities, facilities and services.

The University’s commitment to safeguarding students and employees from prohibited discrimination is set out in the Statement on Prohibited Discrimination, and the procedures for addressing alleged violations of the Statement by employees are set out in the Statement on Prohibited Discrimination Procedures for Complaints against an Employee of the University.

### Complaints against an Employee of the University

The University regulations set out the procedures for addressing complaints against an employee of the University. The procedures for addressing complaints against an employee of the University are set out in the Statement on Prohibited Discrimination Procedures for Complaints against an Employee of the University.
As stated in the Statement on Prohibited Discrimination:
The University operates in accordance with the Nova Scotia Human Rights Act. The Act prohibits discrimination in certain activities including the provision of or access to services and facilities, accommodation, publications and employment. Discrimination is defined as making "a distinction, whether intentional or not, based on a characteristic, or perceived characteristic [not list below] that has the effect of imposing burdens, obligations or disadvantages on an individual or class of individuals not imposed upon others or which withhold or limits access to opportunities, benefits and advantages available to other individuals or classes of individuals in society." The Act prohibits discrimination based on the following grounds or characteristics:

a) age
b) race
c) colour
d) religion
e) creed
f) sex

vi) sexual orientation
vii) physical disability or mental disability
ix) an irrational fear of contracting an illness or disease
x) ethnic, national or aboriginal origin
xi) family status
xii) marital status
xiii) source of income
xiv) political belief, affiliation or activity
xv) association with an individual or a class of individuals having characteristics referred to in (2) to (14)

The University recognizes that it has an obligation to provide a learning environment and community free from prohibited discrimination. The University has an obligation to make accommodations for students in instances where a student's learning environment or the University community in which they operate has a discriminatory effect on the student's ability to fully participate in, and have access to, University academic programs, activities, facilities and services. In particular, the University is obliged to make every reasonable effort short of undue hardship to take substantial, timely and meaningful measures to eliminate or reduce the discriminatory effects of the learning and community environment, including facilities, policies, procedures, and practices.

The purpose of this policy is to set out clear procedures to be followed in all instances where a student seeks accommodation to eliminate or ameliorate discrimination on one of the prohibited grounds. This policy replaces existing policies or practices concerning student accommodation.

Policy
Definitions
1. In this policy, "academic accommodation" means accommodation in relation to the student's participation in an academic program or particular course;

- "administrative head" means the individual with day-to-day operational responsibility for a University operation, activity, service or non-academic program;

- "non-academic accommodation" means accommodation in relation to University activities and services that are not otherwise considered academic accommodation;

- "student" shall include individuals enrolled at the University;

- "Student Accommodation Liaison" means the individual or committee assigned responsibility for managing accommodation requests by each Faculty in accordance with section 3 of this policy.

Role of Student Accommodation Office, Faculty and Administrative Heads
2. Subject to the terms of this policy, the Advising and Access Services Centre will be responsible for administering student requests for accommodation, in consultation with the Faculty's Student Accommodation Liaison in relation to academic accommodation, and in consultation with the relevant administrative head in relation to non-academic accommodation.

3. Each Faculty shall either assign a senior academic administrator or a Faculty, School or Department committee the responsibility to act on behalf of the Faculty in relation to academic accommodation requests under this Policy. Such individuals or committee shall be referred to in this policy as the Student Accommodation Liaison.

4. Prior to the commencement of each academic year, the Student Accommodation Liaison shall be responsible for approving parameters for academic accommodations relative to the Faculty's particular academic program and course requirements.

Requests for accommodation
5. It is the student's responsibility to make a request for accommodation in accordance with this policy. The request for accommodation must be made reasonably in advance of the event or process in relation to which accommodation is being sought so that a decision can be made. Except in rare circumstances when significant psychological or mental health issues arise, there should be no "after-the-fact" accommodation. The University will consider a request for accommodation made by a third party (physician, family member, caregiver, advocate or other representative) only where the student has provided prior written consent.

6. A request for accommodation shall be made by the student in writing to the Advising and Access Services Centre, and shall contain the following information:

- the reasons for the accommodation (i.e. particulars of the discriminatory impact on the student on one of the prohibited grounds) and any supporting documentation;
- the accommodation being requested and/or any suggestions as to how the accommodation can be achieved;
- where a medical condition is relevant to the request, copies of medical reports or additional medical documentation to substantiate the request and to assist in identifying the most appropriate means of accommodation; and
- where the request relates to academic accommodation in relation to a learning disability, a current psychological/educational report describing the nature of the learning disability.

Assessment and Decisions concerning accommodation
7. The assessment by the Advising and Access Services Centre is a two-step process. First, the Advising and Access Services Centre screens the request to ensure that only requests arising in relation to one of the prohibited grounds of discrimination are permitted to proceed. If the request does arise in relation to one of the prohibited grounds, The Advising and Access Services Centre shall proceed to the second step, and shall consider all relevant factors in making a preliminary assessment as to whether an accommodation could be made without imposing an undue hardship to the University. In making such an assessment, The Advising and Access Services Centre will usually consult with the student making the request. Relevant factors include, but are not limited to, the following:

- Linkage – whether the proposed accommodation will have the practical effect of eliminating or reducing the identified barrier;
- Safety – whether the proposed accommodation would pose a safety risk to the student, staff or other students or to the student seeking accommodation;
- Financial Cost – what are the costs (estimate out-of-pocket expenses to put the accommodation in place together with any long-term costs to sustain the proposed accommodation), and would such costs be prohibitive;
- Size and nature of the program or service – how disruptive would the proposed accommodation be to the program or service, considering the number of students, faculty and staff and the nature and inter-relationships of their roles;
- Impact on academic requirements – whether the proposed accommodation will substantially undermine the academic requirements of the program; and
10. The Advising and Access Services Centre in consultation with the Student
9. Where the request is for non-academic accommodation, the Advising and
2. The notice of appeal described under section 10 of the policy shall be on Form
15. All faculty, staff and students shall cooperate with accommodation plans
12. Where a student believes that his or her request for accommodation has not
11. There shall be an Accommodation Appeals Committee comprising two
whether any adjustments to the accommodation plan are necessary. In consultation with the
Student Accommodation Liaison, and course instructor as required, the
Access Services Centre shall inform the student, those who are necessary for the
Accommodation Liaison of the decision. Except in extraordinary
Access Services Centre may review accommodation plans from
time to time to determine whether any adjustments to the accommodation plans
are necessary.

Where the circumstances are not addressed by the approved
parameters, the Advising and Access Services Centre shall also consult with the
Student Accommodation Liaison. The Advising and Access Services Centre shall inform the student, those who are necessary for the
implementation of the decision (such as the course instructor), and the Student
Accommodation Liaison of the decision. Except in extraordinary circumstances, decisions concerning accommodation shall be communicated
within five working days of the student’s request. A request can be expedited
at the request of the student if circumstances warrant. In consultation with the
Student Accommodation Liaison, and course instructor as required, the
Advising and Access Services Centre may review accommodation plans from
time to time to determine whether any adjustments to the accommodation plans
are necessary. The Advising and Access Services Centre in consultation with the Student
Accommodation Delegates and the administrative heads, as appropriate, will monitor accommodation plans from time to time to ensure that they have been implemented in accordance with this policy.

Appeals
11. There shall be an Accommodation Appeals Committee comprising two
members appointed by the Vice-President Finance and Administration, two
members appointed by the Vice-President Academic and Provost, two
members appointed by the Vice-President Student Services, and three students
appointed by the Vice-President Student Services.
12. Where a student believes that his or her request for accommodation has not been
handled in accordance with this policy or is not satisfied with the type of
accommodation provided, the student may appeal such decision by providing
written notice to the Advising and Access Services Centre within 10 working
days of the date of the decision. Upon receipt of such notice, the Advising and
Access Services Centre shall ask the Vice-President Academic to select a
hearing panel comprising three employees and two student members of the
Accommodation Appeals Committee to hear the appeal.
13. The Accommodation Appeals Committee’s hearing panel may uphold the initial
decision concerning the accommodation or may determine that an alternate
form of accommodation should be provided. The decision of the hearing panel
is final, and cannot be appealed further.

Confidentiality
14. Particulars of requests for accommodation, including supporting
documentation, shall be treated as strictly confidential, and shall not be
disclosed to other persons without the consent of the student requesting
accommodation, except and to the extent that such disclosure is reasonably
necessary for the effective implementation of the accommodation plan.

Cooperation
15. All faculty, staff and students shall cooperate with accommodation plans
implemented under this policy. Failure to cooperate may be considered
prohibited discrimination under the Statement on Prohibited Discrimination.
16. Notwithstanding anything in this policy, students have the right at any time to
seek the assistance of the Nova Scotia Human Rights Commission.

Procedures
1. Requests for accommodation under section 5 of the policy shall be on Form
B.
2. The notice of appeal described under section 10 of the policy shall be on Form
B.

Support Services
Dalhousie University endeavours to provide a broad range of support services to
all its students. Students wishing to obtain assistance from the University shall
be expected to undertake a reasonable measure of self-advocacy to ensure that they
are provided with the support services necessary. Such support services may
include personal counselling, academic counselling, academic advising, and
academic skill training.

NOTE: Accommodation of a student's needs due to disability will be facilitated
if the student self-discloses and makes prior arrangements. Accommodation may be denied if advance notification or prior arrangements have not been made.

Policy on the Submission of Student Papers
Any instructor may require student assignments to be submitted in both written
and electronic (computer-readable) form, e.g., a text file or as an email
attachment, as defined by the instructor. Use of third-party originality checking
software does not preclude instructor use of alternate means to identify lapses in
originality and attribution. The results of such assessment may be used as
evidence in any disciplinary action taken by the Senate.

Procedures
If an instructor plans to use originality-checking software in a course, students
shall be informed in the course syllabus that their written work may be submitted to a text-matching software service, which is meant to assure students that
everyone will be evaluated on the basis of their own work and to warn students that plagiarism is likely to be detected. The planned use of originality-checking
software will also be included in the oral presentation of the course syllabus in the
initial course meeting.

Students shall also be informed in the course syllabus that they are free, without
penalty of grade, to choose an alternative method of attesting to the authenticity of
their work.

Students shall inform instructors no later than two weeks after the commencement
courses of their intent to choose an alternate method.

Instructors shall provide students with at least two possible alternatives that are
not unduly onerous and that are appropriate for the type of written work.

Alternatives shall be chosen from the following:

a) Submitting copies of multiple drafts demonstrating development of the work;

b) Submitting an annotated bibliography;

c) Submitting photocopies of sources;

d) Other alternatives devised by the instructor, provided that they are not unduly onerous.

Intellectual Honesty
A university should be a model of intellectual honesty. As such Dalhousie
University shares in the academic values of honesty, trust, respect, fairness and
responsibility (Centre for Academic Integrity, 1999 - of which Dalhousie University is a member). Failure to meet the University’s standards with respect to
these values can result in an academic offence. The length of time a student has
attended university, the presence of a dishonest intent and other circumstances
may all be relevant to the seriousness with which the matter is viewed.

Violations of intellectual honesty are offensive to the entire academic community,
not just to the individual faculty member and students in whose course an offence
occurs.

Instructors are responsible for setting examinations and assignments as part of
the learning process and for evaluating those examinations and assignments,
including ensuring that any rules stated for the procedures used in an examination
or assignment are followed. Any violation of such stated rules that could result in a
student gaining an unfair or unearned advantage may be considered to be an
academic offence.

Examples of Academic Offences
There are many possible forms of academic dishonesty. Since it is not possible to
list all instances of academic dishonesty, the following list of examples should be
considered only as a guide. The omission of a dishonest action from this list does
not prevent the University from prosecuting an alleged instance of that action.

University Regulations 23
A. Plagiarism

Members of academic communities are privileged to share in knowledge generated through the efforts of many. In return, each member of the community has the responsibility to acknowledge the source of information used and to contribute knowledge that can in turn be treated and used by others. Consequently, the University attaches great importance to the contribution of original thought to learning and scholarship. It attaches equal importance to the appropriate acknowledgment of sources from which facts and opinions have been obtained.

Dalhousie University defines plagiarism as the submission or presentation of the work of another as if it were one’s own.

Plagiarism is considered a serious academic offence that may lead to the assignment of a failing grade, suspension or expulsion from the University. If a penalty results in a student no longer meeting the requirements of a degree that has been awarded, the University may rescind that degree.

Some examples of plagiarism are:

• failure to attribute authorship when using a broad spectrum of sources such as written or oral work, computer code/programs, artistic or architectural works, scientific projects, performances, web page designs, graphical representations, computer programs, written or oral work, computer codes/programs, artistic or architectural works, scientific projects, performances, web page designs, graphical representations, scientific projects, performances, web page designs, graphical representations, scientific projects, performances, web page designs, graphical representations, scientific projects, performances, web page designs, graphical representations, scientific projects, performances, web page designs, graphical representations, scientific projects, performances, web page designs, graphical representations, or images;

• downloading all or part of the work of another from the Internet and submitting as one’s own; and

• the use of a paper prepared by any person other than the individual claiming to be the author.

The proper use of footnotes and other methods of acknowledgment vary from one field of study to another. Failure to cite sources is required in the particular field of study in the preparation of essays, term papers and dissertations or theses may, in some cases, be considered to be plagiarism.

Students who are in any doubt about how to acknowledge sources should discuss the matter in advance with the faculty members for whom they are preparing assignments. In many academic departments, written statements on matters of this kind are made available as a matter of routine or can be obtained on request. Students may also take advantage of resources available through the Writing Centre at writcentre.dal.ca or the Dalhousie Libraries at library.dal.ca/services/#f16.

B. Irregularities in the Presentation of Data from Experiments, Field Studies, etc.

Academic research is based on the presentation of accurate information and data that are obtained honestly. The trustworthiness of our findings is essential to the construction and to be recognized for their abilities. Any behavior intended to obtain advantage over another person violates this principle. A member of the University who企图s, or who assists any other person in an attempt, to falsify, by irregular procedures, any requirements for a course, commits an academic offence and is subject to a penalty.

Students who are in any doubt about how to acknowledge sources should discuss the matter in advance with the faculty members for whom they are preparing assignments. In many academic departments, written statements on matters of this kind are made available as a matter of routine or can be obtained on request. Students may also take advantage of resources available through the Writing Centre at writcentre.dal.ca or the Dalhousie Libraries at library.dal.ca/services/#f16.

C. Other Irregularities

Dalhousie University strives to provide equal opportunities for learners to demonstrate and to be recognized for their abilities. Any behavior intended to gain advantage over another person violates this principle. A member of the University who attempts, or who assists any other person in an attempt, to falsify, by irregular procedures, any requirements for a course, commits an academic offence and is subject to a penalty.

In the absence of specific approval from the instructor of a course, all students should assume that every assignment is to be completed independently, without any form of collaboration.

Students should take reasonable precautions to prevent other students from having access, without permission, to their tests, assignments, essays or term papers.

The following are some examples of irregular procedures. The list should be used only as a guide since it is not possible to cover all situations that may be considered by the Senate Discipline Committee to be irregular:

• writing an examination or test for someone else;

• attempting to obtain or accepting assistance from any other person during an examination or test;

• during the time one is writing an examination or test, having material that is not specifically approved by the instructor;

• without authorization, obtaining a copy of an examination or test, topic for an essay or paper, or other work;

• without authorization from the faculty member in charge of that course, submitting any work for academic credit when one is not the sole author or creator;

• without authorization submitting any work that has been previously accepted for academic credit in any other course in any other degree, diploma or certificate program, or has been completed as part of employment within the University, for example, as research activity. A repeated course is considered to be a separate course.

D. Aiding in the Commission of an Academic Offence

No student may encourage or aid another student in the commission of an academic offence, for example:

• by lending another student an assignment knowing that he or she may copy it for submission;

• by offering another student to copy answers during an examination.

E. Misrepresentation

Any person who provides false or misleading information during an investigation of a suspected academic offence is guilty of an offence.

Discipline

1. Members of the University, both students and staff, are expected to comply with the general laws of the community, within the University as well as outside it.

2. Alleged breaches of discipline relating to student activities under the supervision of the Dalhousie Student Union are dealt with by the Student Union. Alleged breaches of discipline relating to life in residences are dealt with by the residence discipline policy unless the President determines that some non-residence University interests are involved. Senate is charged with the authority to deal with cases of alleged academic offences, see examples above, as well as with certain other offences that are incompatible with constructive participation in an academic community.

3. On report of a serious breach of the law, or a serious academic offence deemed by the President, or in his or her absence by a Vice-President or the Dean of a Faculty, to affect vital University interests, a student involved may be temporarily suspended and denied admission to courses or to the University by the President, Vice-President or Dean, but any suspension shall be reported to the Senate, together with the reasons for it, without delay.

4. No refund of fees will be made to any student required to lose credit for any course taken, required to withdraw or who is suspended or dismissed from any course or any Faculty of the University.

Academic Dishonesty

Faculty Discipline Procedures Concerning Allegations of Academic Offences

I. Premise

These procedures deal with allegations of academic offences and do not deal with violations of the student code of conduct. The purpose of these procedures is to delegate assessment of certain allegations of academic offences to the Faculty level.

Guideline for Evaluators

An alleged first or later breach of any academic standard by a student should never be dealt with by an evaluator, but in all instances, should be referred to the Academic Integrity Officer in accordance with these procedures. Any attempt by any person or body other than the Senate, the Senate Discipline Committee, or the Academic Integrity Committee to impose a penalty for an alleged offence is null and void and leaves the student still liable to discipline for that offence. Further, a student remains liable to discipline for a suspected offence notwithstanding a failure on the part of an evaluator to report the allegation in accordance with these procedures.

Where an allegation of a breach of academic standards has been made or is pending, the evaluator should not reveal the mark or grade to anyone until the Vice-Chair (Academic Administration) has confirmed the disposition of the matter by the Senate Discipline Committee or the Academic Integrity Officer.
II. Academic Integrity Officers

1. Academic Integrity Officers are associated with the Faculties of Dalhousie University.

2. The Academic Integrity Officer shall act between the student and instructor, and may appear at Hearing Panels of the Discipline Committee or the Discipline Appraisal Board.

3. The Academic Integrity Officer is the Dean of the Faculty. The Dean may further delegate this role to one or more members of his/her academic staff except those who are Senate Officers, who are otherwise involved in the student discipline process, or who otherwise are in a potential conflict of interest relative to this role. Anywhere the name of the delegate(s) shall be communicated in writing to the Vice-Chair (Student Affairs) who shall report to Senate.

4. The Academic Integrity Officers shall meet as a group with the Senate Discipline Committee (SDC) at least once a year to discuss relevant policy issues and training requirements with a view to maximizing consistency and predictability in the administration of academic offences across the University. Such meetings will be convened and chaired by the Vice-Chair (Student Affairs).

5. Penalties

Penalties shall follow the guidelines contained within the University’s Academic Regulations and the Senate Discipline Committee terms of reference set out in Section 10 of the Senate Constitution, which are reproduced below for convenience.

The range of penalties which may be imposed by the Senate Discipline Committee be circumscribed only by the requirement that such penalty or penalties be of an academic nature and, without restricting the generality of the foregoing, may include any one or more of:

a) notation of the fact of discipline on the student’s official transcript for a period of not more than one academic year;

b) failure of the academic year;

c) suspension for one academic term or year or to a maximum suspension of three academic years;

d) expulsion from the University;

e) loss of a current or continuing scholarship, or both, or loss of eligibility to receive or to maintain scholarships or prizes or bursaries; and

f) removal from the Dean’s List.

6. Faculty Procedures

When an academic offence is suspected, the instructor shall submit a signed statement outlining the basis for the allegation, together with all relevant supporting evidence, to the Academic Integrity Officer of the Faculty which is responsible for the delivery of the course at issue, or in the case of an allegation in relation to a graduate thesis or other non-course graduate materials, to the Academic Integrity Officer of the Faculty of Graduate Studies.

The Academic Integrity Officer shall forward the matter to the Senate Discipline Committee for assessment of an appropriate penalty.

If the Academic Integrity Officer has the authority to convene a meeting with all students facing allegations arising from the same fact situation (“common allegation”), the Academic Integrity Officer also has the discretion to convene additional meetings with the student(s)’ advisor, if any, and the instructor. The Academic Integrity Officer (SDC) has the discretion to convene additional meetings as may be reasonably required. In the event an initial meeting does not occur within a reasonable time after a prima facie case is established, the Academic Integrity Officer shall forward the matter to the Senate Discipline Committee.

7. Subparagraph 8 of paragraph 8, in the case of two or more students facing allegations arising from the same fact situation (“common allegation”), the Academic Integrity Officer has the authority to convene a meeting with all such students in accordance with paragraphs 8 and 10 and to make findings for all such students under these Procedures, regardless of the fact that one or more of such students may have a record of prior academic offence(s). If the Academic Integrity Officer’s assessment is that there is sufficient evidence to support a finding that the student has committed an academic offence, for any such student who has no record of prior academic offence(s), subject to paragraph 4, the Academic Integrity Officer shall assess an appropriate penalty for the student in accordance with these Procedures; and for any such student who has a record of prior academic offence(s), the Academic Integrity Officer shall forward the matter to the Senate Discipline Committee for assessment of an appropriate penalty.

8. Following the meeting convened in accordance with paragraph 8, the Academic Integrity Officer shall make a preliminary assessment of whether there is sufficient evidence to support a finding that the student has committed an academic offence, and if there is sufficient evidence, make a preliminary assessment of what penalty would be appropriate in the circumstances. In making the latter assessment, the Academic Integrity Officer shall exercise broad discretion in considering possible mitigating circumstances including but not limited to extraordinary personal circumstances and lack of educational experience.

9. If the Academic Integrity Officer’s assessment is that there is insufficient evidence to support a finding that the student has committed an academic offence, the student is informed in writing within five working days of the meeting. This does not preclude an Academic Integrity Officer from referring the matter to the SDC at any time.

10. If the Academic Integrity Officer’s assessment is that there is sufficient evidence to support a finding that the student has committed an academic offence, AND that the appropriate penalty for the student’s conduct is any of the penalties described in paragraph 5 above, except those listed in subparagraphs 5 to 9 to the Senate Discipline Committee to provide the student with the option of accepting the proposed penalty, or, of proceeding to the Senate Discipline Committee for a full hearing. The option shall be presented to the student within five working days of the meeting, and the student shall have two working days to respond. In the event that the student elects to accept the finding and proposed penalty, the Academic Integrity Officer shall so advise the Vice-Chair (Student Affairs).

11. Within 14 calendar days of the Vice-Chair (Student Affairs) being advised of the finding and agreed penalty under paragraph 12, the Vice-Chair (Student Affairs) shall jointly review the finding and agreed penalty to determine whether the process is consistent with the Faculty Discipline Procedures Concerning Allegations of Academic Offences. If so, they shall notify the matter on behalf of Senate and the Vice-Chair shall notify the student and the Academic Integrity Officer of such notification. For ratification to occur, the decision must be unanimous. The finding and agreed penalty shall stand, despite possible appeals (procedural) errors. The Vice-Chair (Student Affairs) shall ensure that the offence is recorded on the Senate Discipline database and that the Registrar and any others are notified of the finding and penalty for immediate implementation. If the Vice-Chair (Academic Administration) and/or the Chair (Student Affairs) are not satisfied that the academic concerns can be resolved. If the Vice-Chair (Academic Administration) and the Academic Integrity Officer are unable to resolve any concerns, the matter shall be referred back to the Academic Integrity Officer for further consideration under these Procedures, after which the Vice-Chair
General Information

16. Prior to a hearing by the Senate Discipline Committee of an allegation against a student, the Academic Integrity Officer shall provide a written allegation to the Senate office identifying the evidence initially presented by the instructor pursuant to paragraph 5 and any additional evidence obtained by the instructor in the course of the assessment of the matter. The written allegation shall not include reference to whether or not any meetings did occur pursuant to paragraph 6 or 7, any statements that may have been made by the student at such meeting(s), or any alternate versions of the facts and circumstances that may have been presented by one or more students at such meeting(s). The student shall have the opportunity to provide a written submission in response to the hearing by the Senate Discipline Committee. Notwithstanding the foregoing, in the event of a statement made by a student at a hearing of the Senate Discipline Committee that is inconsistent with a statement previously made by that student in the meeting(s) with the Academic Integrity Officer, the Academic Integrity Officer may refer to statements that may have been made by the student at such meeting(s).

17. Confidentiality must be maintained by those involved in each case when an academic offense is suspected and the instructor submits an allegation to the Academic Integrity Officer, except as reasonably necessary to implement the finding and appeal process or as required in subsequent disciplinary procedures related to the same matter.

Senate Discipline Committee

Jurisdiction of the Senate Discipline Committee

1. The Senate Discipline Committee has jurisdiction to hear:
   a) Complaints referred to the Senate Discipline Committee under the Code of Student Conduct ("Code Complaints"), and
   b) Allegations of academic offenses referred to the Senate Discipline Committee under the Faculty Discipline Procedures Concerning Allegations of Academic Offenses ("Integrity Allegations").

2. For the purpose of these procedures, the following definitions shall apply:
   a) Allegation means a Code Complaint or an Integrity Allegation as the context requires.
   b) University Representative means the President of the University or his/ her designee in the case of Code Complaints, or the Academic Integrity Officer in the case of Integrity Allegations.

3. The Senate Discipline Committee’s jurisdiction extends to Allegations against a student who, before or during the course of the disciplinary process involving him or her, but prior to adjudication, has:
   a) been compelled to withdraw academically;
   b) chosen not to register at the University;
   c) chosen to withdraw from the course, the program, or the University prior to being disciplined, or;
   d) chosen not to register at the University.

4. In the case of Integrity Allegations, a Hearing Panel of the Senate Discipline Committee may:
   a) dismiss the allegation; or
   b) impose any of the following:
      i) the student may have been presented by one or more students at such meeting(s). The student shall have the opportunity to provide a written submission in response to the hearing by the Senate Discipline Committee. Notwithstanding the foregoing, in the event of a statement made by a student at a hearing of the Senate Discipline Committee that is inconsistent with a statement previously made by that student in the meeting(s) with the Academic Integrity Officer, the Academic Integrity Officer may refer to statements that may have been made by the student at such meeting(s).

v) failure of the course;
vi) suspension for an academic term or year (to a maximum suspension of three academic years);
19. The University Registrar shall present the Allegation and witnesses, if any. The student and any members of the Hearing Panel may question the University Registrar and the University Representative's witnesses following the presentation of the Allegation.

20. The student may present his or her defence and witnesses, if any, following the University Registrar's presentation. The University Representative and any members of the Hearing Panel may question the student and any of the student's witnesses following the presentation of the defence.

21. At the discretion of the Chair of the Hearing Panel, the parties may make final arguments following the presentations. The student shall have the last word.

22. At the discretion of the Hearing Panel, any evidence sought to be admitted by either party from witnesses who are not available to give evidence in person may be received in some or other form.

23. The student is considered innocent until the Allegation is proven on a balance of probabilities, the burden of which lies with the University Representative.

24. The decision of the Hearing Panel shall be by majority.

25. The Hearing Panel shall report its decision including reasons for the decision and any penalty imposed, to the Vice-Chair (Student Affairs) who shall forward a copy of the decision to the student and the University Registrar.

26. An audio recording of each oral hearing shall be made. The recording and all correspondence and documentary evidence relating to uphold proceedings shall be kept in accordance with the records management policies of the University Secretariat. The student may obtain a copy of the audio recording by making written request to the Vice-Chair (Student Affairs) and may use such recording only for the purpose of an appeal of the decision in question.

27. Appeals from decisions of the Senate Discipline Committee may be made to the Senate Appeals Committee in accordance with the Senate Appeals Committee - Jurisdiction and Appeals Procedures.

28. The Senate shall maintain a confidential database of discipline decisions for the purposes of general reporting and proper adjudication of repeat offences.

King's College

29. Appeals from decisions of the Dalhousie Registrar shall be made to the University Registrar. The student shall have the right to present his or her version of the facts to the University Registrar. The University Registrar may then either uphold the decision of the Dalhousie Registrar or overrule the decision of the Dalhousie Registrar and impose a new penalty.

30. If an appeal is made to the University Registrar, the student shall be afforded a full hearing. The student may present his or her defence and witnesses, if any, following the presentation of the University Registrar's decision. The University Registrar may question the student and any of the student's witnesses following the presentation of the defence.

31. The student may present his or her defence and witnesses, if any, following the University Registrar's presentation. The University Representative and any members of the Hearing Panel may question the student and any of the student's witnesses following the presentation of the defence.

32. At the discretion of the Chair of the Hearing Panel, the parties may make final arguments following the presentations. The student shall have the last word.

33. At the discretion of the Hearing Panel, any evidence sought to be admitted by either party from witnesses who are not available to give evidence in person may be received in some or other form.

34. The student is considered innocent until the Allegation is proven on a balance of probabilities, the burden of which lies with the University Representative.

35. The decision of the Hearing Panel shall be by majority.

36. The Hearing Panel shall report its decision including reasons for the decision and any penalty imposed, to the Vice-Chair (Student Affairs) who shall forward a copy of the decision to the student and the University Registrar.

37. Appeals from decisions of the Senate Discipline Committee may be made to the Senate Appeals Committee in accordance with the Senate Appeals Committee - Jurisdiction and Appeals Procedures.

38. The Senate shall maintain a confidential database of discipline decisions for the purposes of general reporting and proper adjudication of repeat offences.

King's College

39. Appeals from decisions of the Dalhousie Registrar shall be made to the University Registrar. The student shall have the right to present his or her version of the facts to the University Registrar. The University Registrar may then either uphold the decision of the Dalhousie Registrar or overrule the decision of the Dalhousie Registrar and impose a new penalty.

40. If an appeal is made to the University Registrar, the student shall be afforded a full hearing. The student may present his or her defence and witnesses, if any, following the presentation of the University Registrar's decision. The University Registrar may question the student and any of the student's witnesses following the presentation of the defence.

41. The student may present his or her defence and witnesses, if any, following the University Registrar's presentation. The University Representative and any members of the Hearing Panel may question the student and any of the student's witnesses following the presentation of the defence.
4. Unauthorized Use of University Facilities, Equipment or Services

a) No student shall use any facility, equipment or service of the University, or part or remain on any premises, to which he or she has not legitimate access, or contrary to the expressed instruction of authorized persons.

b) No student shall use any University computing equipment, facility, network or system for any disruptive or unauthorized purpose, or in a manner that violates any law, Dalhousie University regulations, policies and procedures, or in any way that is incompatible with the principles in the Acceptable Use of Information Technology Resources sections. Examples of inappropriate use of computer equipment, facilities, networks and systems include, but are not limited to:

i) copying, removing or distributing software and/or data without authorization;

ii) using another person's account, or misrepresenting themselves as another user;

iii) displaying confidential passwords, access codes, etc., assigned to themselves or others;

iv) interfering with the work of others using computing equipment, facilities, networks, systems or accounts;

v) displaying, transmitting, distributing or making available information that is discriminatory, obscene, offensive, derogatory, harassing or otherwise objectionable;

vi) breaching terms and conditions of software licensing agreements;

vii) interfering with the normal operation of computing equipment, facilities, networks or systems by, among other things, flooding the network with messages, sending chain letters or pyramid solicitations; victimizing the University's computing equipment, facilities, networks and systems for profit or commercial gain.

c) No student shall destroy, misuse, misfile, or render inoperable any stored information such as books, films, data files or programs from a library, computer or other information storage, processing or retrieval system.

5. Aiding in the Commission of an Offence

No student shall encourage or aid another student in the commission of an offence defined in this Code, or encourage or aid behavior by a non-student which, if committed by a student, would be an offence under this Code.

6. Alcohol and Drug Use

No student shall contravene the Liquor License Act of Nova Scotia or a provision of the Campus Alcohol Policy, nor shall any student possess, use or sell a drug to which access is restricted by the Narcotics Control Act.

7. False Information and Identification

a) No student shall knowingly furnish false information to any person or office acting on behalf of the University.

b) No student shall forge, alter or misuse any document, record or instrument of identification.

c) No student shall knowingly furnish false information to any person regarding his or her standing, status or academic record at Dalhousie University.

8. Unauthorized Possession of a Firearm or Weapon

No student shall possess a firearm or other weapon on the University premises without the specific written permission of the Chief of Security.

9. Contrevention of University Regulations

When a rule, regulation or policy of the University prohibits or proscribes certain conduct but does not provide any penalty for breaches of the rule, regulation or policy, breaches shall be dealt with under this Code.

10. Other

No student shall contravene any provision of the Criminal Code or any other federal, provincial or municipal statute on the premises of the University or in the course of the University's programs or services, or University-approved events or activities.

D. Procedures

1. Whenever possible and appropriate, reason and informal measures shall be used to resolve issues of individual behavior before resort is made to formal disciplinary procedures.

2. Any person may make a complaint against any student for misconduct. A complaint shall be prepared in writing and directed to the Vice-President, Student Services. Any complaint should be submitted as soon as possible after the event takes place. All complaints shall be presented to the accused student in written form. Along with notice of the complaint the accused student shall be advised of his/her right to be represented throughout the process, including by a Student Advocate.

3. The Vice-President, Student Services, or designate shall conduct an investigation to determine if the complaint has merit and/or if it can be disposed of informally by mutual consent of the parties involved or a basis acceptable to the Vice-President, Student Services, or designate. If an informal investigation is determined to be appropriate and successful, the student(s) involved in the incident will receive credit towards their educational requirements.
disposition of the complaint results, such disposition shall be final, and there shall be no subsequent proceedings.

4. An agreement that a student will withdraw from the University for a period of time, or not re-register, may be part of an informal disposition of a complaint. In such instances this will not be recorded on the student’s academic record, but a “black” on further registration may be entered in the student information system.

5. The Vice-President, Student Services, shall report annually to Senate regarding the number and nature of complaints that are disposed of informally.

6. If the complaint cannot be resolved informally through the procedures described in Section 5, or if in the judgment of the Vice-President, Student Services, it is not appropriate for the complaint to be so resolved, the Vice-President, Student Services, shall refer the complaint to the Senate Discipline Committee for a formal hearing. In determining whether to refer a case to the Senate Discipline Committee, the Vice-President, Student Services, may seek advice from a student Discipline Advisor or other appropriate source.

7. Where there are criminal or civil proceedings pending against the student for acts related to the complaint, the Vice-President, Student Services, may defer prosecution of the complaint on such terms and conditions as are appropriate in the circumstances (including an interim suspension) and the conclusion of all or part of such proceedings where the circumstances of the case warrant. Conviction of a criminal offence will be considered prima facie evidence of a parallel offence under the Code.

8. Any statements an accused student makes to the Vice-President, Student Services, or designate in the course of an attempt to resolve a complaint informally may not be submitted to the Senate Discipline Committee as evidence.

9. Hearings shall be conducted by the Senate Discipline Committee according to procedures determined by the Committee. In other than exceptional circumstances, hearing the Senate Discipline Committee shall occur within 60 calendar days of the referral of a complaint to the Committee.

10. The President or designate shall appoint a person to present the complaint.

11. If a student fails to appear at a hearing, the hearing may proceed, provided that the student has been given adequate notice. Except in the case of a student charged with failing to obey the summons of the Committee or University official, no student may be found to have violated the Student Code solely because the student failed to appear before the Committee. In all cases, the evidence in support of the complaint shall be presented and considered.

E. Sanctions

1. In each case in which the Senate Discipline Committee determines that a student has violated the Student Code, the sanction(s) shall be determined and imposed by the Committee.

2. The following sanctions may be imposed upon any student found to have violated the Student Code:

   a) **Warning** – A notice in writing to the student that the student is violating or has violated institutional regulations.

   b) **Probation** – A written reprimand for violation of specified regulations. Probation is for a designated period of time and includes the probability of more severe disciplinary sanctions if the student is found to be violating any institutional regulations during the probationary period.

   c) **Loss of Privileges** – Denial of specified privileges for a designated period of time.

   d) **Restitution** – Compensation for loss, damage or injury. This may take the form of monetary or material replacement.

   e) **Disciplinary Sanctions** – Work assignments, service to the University or other such discretionary assignments that are considered appropriate by the Discipline Committee.

   f) **Conditions** – Conditions may be imposed upon a student’s continued attendance.

   g) **University Suspension** – Suspension of the student from the University for a specified period of time, after which the student is eligible to return. Conditions for readmission may be specified.

   h) **University Expulsion** – Permanent separation of the student from the University.

3. More than one of the sanctions listed above may be imposed for any single violation.

4. Other than expulsions from the University and suspension for the duration of its existence, disciplinary sanctions shall not be made part of the student’s academic record, but shall be kept on file in the Office of the Vice-President, Student Services, for use in the event of future breaches of this Code.

5. No student found guilty of an offense under this Code shall refuse to comply with a sanction or sanctions imposed under the procedures of this Code. Such refusal will constitute grounds for the imposition of additional sanctions.

6. The Committee may direct that a sanction be held in abeyance if a student’s registration at the University is interrupted for any reason.

F. Interim Suspension

In the following circumstances, the President of the University, or a designee, may impose an interim suspension prior to the hearing before the Committee.

1. Interim suspension may be imposed only: (a) to ensure the safety and well-being of members of the University community or preservation of University property; (b) to ensure the student’s own physical or emotional safety and well-being; or (c) if the student poses a threat of disruption or of interference with the operations of the University or the activities of its members.

2. During the interim suspension, students may be denied access to specified campus facilities (including courses) and/or any other University activities or privileges for which the student might otherwise be eligible, as the President or the designate may determine to be appropriate.

3. A student who is the subject of an interim suspension may request a hearing before the Senate Discipline Committee on the issue of the interim suspension itself. This request shall be submitted in writing, with reasons, to the Secretary of Senate. The Committee shall hear the matter, including submission by the President or designate, within ten working days, and shall have the authority to confirm, negate, or alter the terms of the interim suspension.

Protection of Property

Dalhousie University is the owner and/or occupant of the lands and buildings which comprise its campuses. In addition to all other processes set out in this Calendar (including the Code of Student conduct), the University reserves the right to exercise all rights and remedies available to it pursuant to any statute, by-law, regulation, ordinance, order, or otherwise, in order to protect campus property and those who use it.

2. Without limiting the foregoing, Dalhousie University may issue a notice against a student pursuant to the Protection of Property Act prohibiting entry to all or part of the campuses or prohibiting a particular activity or activities on all or part of the campuses, where circumstances warrant. Such a notice may be issued either separately or in conjunction with the procedures set out in the Code of Student Conduct. The notice may be in force for the period stated in the notice which will normally be for up to one calendar year. If considered appropriate by the Vice-President, Student Services, a notice may be renewed for further periods.

3. A notice under the Protection of Property Act may be issued by Dalhousie University in relation to the Student Union Building at the request of the President of the Student Union. In the case of urgent or emergency situations, such a notice may be issued immediately. If the Student Union request is to have a prohibition extended beyond seven days for a registered Dalhousie University student, the Student Union shall make a written request to the Vice-President, Student Services, providing detailed reasons for the request and the process followed leading up to the request for the notice, including details of when the student was advised that his or her conduct warranted such a notice and ought to cease, the reasons provided to the student, and whether the student was afforded the opportunity to respond or to rectify, balance or cease the inappropriate activity.

4. A Dalhousie University student may appeal any notice issued against him or her under the Protection of Property Act in writing to the Vice-President, Student Services.

Senate Appeals Committee

Jurisdiction of the Senate Appeals Committee

1. The Senate Appeals Committee has appellate jurisdiction.

2. The Senate Appeals Committee does not act as an investigative body.

3. The Senate Appeals Committee does not receive a determination of: a) allegations of discrimination, which are addressed under the Statement on Prohibited Discrimination, or b) requests for accommodation, which are addressed under the Accommodation Policy for Students.

4. The Senate Appeals Committee shall consider the following appeals initiated by students:

   a) appeals of decisions of the Senate Appeals Committee.

   b) appeals of decisions of the Committee of the Senate.

   c) appeals of decisions of the Senate.

University Regulations 29
4. Upon receiving notice of an academic appeal, the Senate Vice-Chair (Student Affairs) shall give notice of the appeal to the Appellant, the Respondent, and the Faculty of the applicable Faculty.

5. An appeal may be initiated on the following grounds:
   a) academic appeals from decisions or the refusal to make decisions at the Faculty level regarding academic standards, academic evaluation, academic progression, academic advancement, or the application of other University or Faculty academic regulations.
   b) discipline appeals from decisions of the Senate Discipline Committee.

6. The Senate Appeals Committee shall not consider appeals:
   a) by students in an academic appeal who have not exhausted the appeal procedures of the relevant Faculty,
   b) by students from the decision of a Faculty regarding professional unsuitability, such appeals falling under the jurisdiction of the Senate Hearing Committee,
   c) by a faculty or faculty members,
   d) by applicants for admission to University programs, or
   e) by applicants for scholarships, awards or bursaries.

7. A Hearing Panel of the Senate Appeals Committee may:
   a) dismiss the appeal;
   b) allow the decision under appeal to stand, despite possible insubstantial procedural errors;
   c) in an academic appeal, allow the appeal, with an appropriate remedy within the authority of Senate;
   d) in a discipline appeal, allow the appeal and:
      a) suspend the decision of the Senate Discipline Committee in its entirety,
      b) to hear the matter itself, with the consent of the Appellant and the Faculty, or
      c) direct a re-hearing on the merits by a newly constituted panel of the Senate Discipline Committee, no members of which were on the hearing panel whose decision was under appeal.

8. In an academic appeal, the Hearing Panel shall not conduct a substantive evaluation of the work of a student, but if unsuitability in the evaluation procedure is established, the Panel may direct a re-evaluation of the work to be conducted by qualified persons designated by the Panel.

9. The hearing of each appeal shall be in camera. The Chair of the Hearing Panel shall determine procedures for the hearing in a manner that is consistent with the principles of natural justice. The hearing shall be conducted by qualified persons designated by the Panel.

10. The decision of the Hearing Panel shall be by majority. The Hearing Panel shall be sequestered for a period of three calendar years from the date of the decision of the Hearing Panel, in accordance with the policy of the University Secretariat.

Suspension or Dismissal from a Program on the Grounds of Professional Unsuitability Faculty of Health Professions

The Faculty of Health Professions, acting through Committees on Studies at the School/College and Faculty levels, and in consultation with the Directors and Dean, may suspend or terminate a student from a program if the student is judged to be unsuitable for the profession in which he/she is studying. Because of the nature of the study and practice of the various health professions, which places care givers in a position of special trust, certain impairments or some types of conduct unforeseeable to a student upon entry to a program may be grounds for suspension or dismissal.

The following list includes examples of behaviors that might indicate unsuitability for the various health professions. The nature of these behaviors is such that, should any of them ever be repeated, grievous harm could be caused to clients.

These lists should not be considered to be all inclusive:
   a) a criminal act (e.g., assault, sexual assault, fraud, and drug trafficking) which according to the vocational Faculty was determined to be of such a nature as to bring disrepute to the profession, or by which in the opinion of the Faculty, the student demonstrated poor judgment, lack of integrity or (other) unsuitability for the profession, or evidence that, on the balance of probability, the student had committed such a act;
   b) being under the influence of alcohol or drugs while participating in client care, any other professional activity, or any activity related to the practice of the health profession;
   c) in accordance with provisions of the Nova Scotia Human Rights Act, the occurrence of a health condition that impairs essential performance required for the health profession;
   d) unethical behavior as specified by the code of ethics/standard of practice of the health profession.

The student’s situation will be considered with discretion throughout the investigation of the allegation of unsuitability and the deliberations shall determine whether the student’s suspension, dismissal or neither is recommended. The principles of natural justice and due process will be observed in all investigations.
Any member of the University community can bring to the attention of the Director behaviors that are deemed unsuitable. These behaviors will be investigated and allegations heard.

Appeals will follow the appeal procedure for academic matters within the Faculty of Health Professions notwithstanding that the criteria are different. At the University level, appeals will require formation of an ad hoc Senate Committee. Where the rules of a faculty, such as Health Professions, expressly provide that suitability, fitness, or aptitude for the practice of the profession is a requirement for advancement or graduation, or both, and a Faculty determines that a student should be suspended or dismissed or otherwise should not advance or graduate because of unsuitability for the relevant profession, an appeal from the Faculty decision may be made to an ad hoc appeal committee established by the Senate Steering Committee. The Ad-hoc Appeal Committee shall (1) hear an appeal by a student from the decision of a Faculty regarding suitability, fitness or aptitude for the practice of the relevant profession when: a) the student has exhausted the approved appeal regulations and procedures of the relevant Faculty; and b) the student alleges that there were irregularities or unfairness in the application of the regulations in question. The Ad-hoc Appeal Committee shall not hear appeals: a) by students on a matter involving a requested exemption from the application of Faculty or University regulations or procedures; b) on substantive aspects of a finding of unsuitability.

### Acceptable Use of Information Technology Resources

#### A. Purpose

The purpose of this policy is to outline appropriate use of Information Technology Resources owned, leased, controlled and/or operated by the University.

#### B. Application

This policy applies to all individuals who have been granted a NetID and/or Banner account by the University. The purpose of this policy is to outline appropriate use of Information Technology Resources owned, leased, controlled or operated by the University, including those purchased through research funds.

#### C. Definitions

In this Policy:

- "User Account" means a NetID and/or Banner account issued by the University.
- "Information Technology Resources", or "IT Resources", means computing equipment, peripherals, facilities, networks or systems owned, leased, controlled or operated by the University, including those purchased through research funds.
- "User" means an individual who has been issued a User Account.

#### D. Policy

1. **Accounts**
   1.1 Authorized access to IT Resources requires a User Account. User Accounts are non-transferable.
   1.2 Users are responsible for any and all uses of their User Account and are expected to take reasonable steps to ensure the security of their User Account.

2. **Acceptable Use**

   2.1 Users shall use IT Resources for authorized purposes only.
   2.2 No User shall use IT Resources for any disruptive or unauthorized purpose, or in a manner that violates any law, University regulations, policies or procedures. Examples of unacceptable uses of IT Resources include, but are not limited to, the following:

   2.2.1 using another person’s User Account, or misrepresenting themselves as another User;
   2.2.2 disclosing passwords or other access codes assigned to themselves or others;
   2.2.3 interfering with the normal operation of IT Resources by, among other things, unauthorized network interception, network traffic, flooding the network with messages, sending chain letters or pyramid solicitations;
   2.2.4 copying, removing or distributing proprietary software and/or data without authorization;
   2.2.5 breaching terms and conditions of software licensing agreements;
   2.2.6 accessing, displaying, transmitting, or otherwise making available information that is discriminatory, obscene, abusive, derogatory, harassing or otherwise objectionable in a university setting;
   2.2.7 destroying, misplacing, misfiling, or rendering irretrievable any stored information on a University administered computer or other information storage, processing or retrieval system;
   2.2.8 unauthorized use of IT Resources for profit or commercial gain; and
   2.2.9 attempting to or circumventing security facilities on any system or network.

3. **Consequences of Unacceptable Use**

   3.1 If there is reason to suspect that a User has violated this policy, the President and/or the Assistant Vice-President Information Technology Services or the Information Security Manager may temporarily revoke or restrict User Account access privileges of any User, pending further investigation by the Information Security Manager.

   3.2 To aid in the investigation of a suspected violation of this policy, the Information Security Manager may examine a User’s User Account information, including, but not limited to, emails, files, and any other material or data connected with the User Account, provided that the User obtains the Assistant Vice-President Information Technology Services’ prior written approval. If the User in issue works within the Information Technology Services Department, then approval must be obtained from the President.

   3.3 If the investigation concludes that a violation of this policy has occurred, the Information Security Manager may temporarily revoke or restrict User Account access privileges of any User, pending further investigation by the Information Security Manager in accordance with applicable collective agreements or human resource policies, as appropriate.

   3.3.1 in the case of students, initiate disciplinary proceedings under the Code of Student Conduct;
   3.3.2 in the case of employees, refer the matter for consideration of discipline in accordance with applicable collective agreements or human resource policies, as appropriate.
Academic Regulations

These regulations apply to all students in the College of Arts and Science and the faculties of Agriculture, Architecture and Planning, Computer Science, Engineering, Health Professions and Management. Students in the faculties of Architecture and Planning, Computer Science, Engineering and Health Professions should also consult the regulations specific to their faculty, school or college found in the appropriate sections of this calendar.

PLEASE NOTE:
A student is governed by the academic regulations in place at the time of initial enrollment or as long as the degree is completed within the time permitted (see Section 15, page 35), and that subsequent changes in regulations shall apply only if the student elects. Students applying the old academic regulations should consult the calendar of the appropriate year.

It is the student’s responsibility to maintain documentation of registration and subsequent changes. The Registrar’s Office will rely solely upon computer records and will not maintain paper records of changes to a student’s registration.

1. Definitions
For definitions of some commonly used terms, see page 2.

Academic advisors at Dalhousie strive to enable students to make a successful transition to university, to take responsibility for learning, to set academic, career and personal goals as well as to develop strategies for achieving them. Specifically, academic advisors at Dalhousie help students:
• assess and clarify their interests, academic abilities and life goals;
• develop suitable educational plans consistent with their academic, career and life goals;
• select appropriate courses and complementary educational experiences;
• interpret institutional rules and requirements;
• develop decision-making skills;
• resolve academic problems, conflicts and concerns;
• evaluate their progress towards their goals;
• by referring them as necessary to other resources.

2. Course Selection

2.1 Numbering of Courses
Courses are numbered to indicate their general level. Those in the 1000 series are introductory degree level courses at Dalhousie. Courses in the 2000, 3000, 4000 series are introductory technology level courses at Dalhousie. Courses in the 5000, 6000 series are usually first available to degree level students in the second, third and fourth year respectively. Often these courses have prerequisites. Some departments, schools, colleges have minimum grade requirements for entry and courses above the 1000 level. Such requirements are listed in the calendar entries for the departments, schools, colleges concerned.

Courses listed in the 1000 series are introductory technology level courses at Dalhousie. Courses in the 2000 series offer more detailed exploration of a discipline at the Technology level. 2020 level courses usually have prerequisites or require background knowledge.

Courses listed in the 3000-4000 series are university preparatory courses. An example of a course identifier is as follows: CHEM 1011 CHEM subject code 1011 course number & level Courses with numbers below 1010 normally do not carry credit.

2.2 Academic Advice
Academic advising is available to all students prior to registration. To find out who your advisor is, see the advising website (www.dal.ca/advising) and click on “Where to go for advising.”

Academic advisors at Dalhousie strive to enable students to make a successful transition to university, to take responsibility for learning, to set academic, career and personal goals as well as to develop strategies for achieving them. Specifically, academic advisors at Dalhousie help students:
• assess and clarify their interests, academic abilities and life goals;
• develop suitable educational plans consistent with their academic, career and life goals;
• select appropriate courses and complementary educational experiences;
• interpret institutional rules and requirements;
• develop decision-making skills;
• resolve academic problems, conflicts and concerns;
• evaluate their progress towards their goals;
• by referring them as necessary to other resources.

3. Workload

3.1 Regular Year

3.1.1 College of Arts and Science
Thirty credit hours per academic year shall be regarded as constituting a normal workload for a student. Students wishing to increase their workload to 18 credit hours in any term and have a sessional GPA greater than 3.00 should contact the Registrar’s Office. Students with a GPA less than 3.00 will need to contact the appropriate Assistant Dean to request permission.

3.1.2 BComm School of Business
Thirty credit hours per academic year shall be regarded as constituting a normal workload for a student. However, winter term of third year and first term of fourth year require BComm Co-op students to take 18 credit hours. For this reason, BComm Co-op students must apply to exceed the normal workload policy (see below).

During the work term, the work assignment shall constitute the normal workload.

Note that the second and third summers are regular academic and workterms for co-op students. Students wishing to increase their workload to 18 credit hours in any term and have a sessional GPA greater than 3.00 need to contact the Registrar’s Office. Students with a GPA less than 3.00 will need to contact the Undergraduate Advising Office, Suite 2086, Rowe Building. Such permission will normally be granted for more than three credit hours per term, but to any student who is in his/her first year of study or who, in the preceding academic term, earned a term GPA of less than 3.00 or a full load of courses. Students are not permitted to take more than six courses in any single academic term.

3.1.3 Faculty of Agriculture
A normal full-time course load for students registered in degree programs in Agriculture is considered to be five courses per semester. A normal full-time course load for students registered in the technology programs is five to six courses per semester, depending on the program. Students wishing to increase their workload to six courses per semester (degree) or seven courses per semester (technology) with a sessional GPA greater than 3.00 should contact the Registrar’s Office. Students with a GPA less than 3.00 will need the permission of the faculty advisor and the Assistant Dean - Students.

3.1.4 Faculties of Architecture and Planning, Computer Science, Engineering, Health Professions and Bachelor of Management
For normal workloads, see the individual school or college section of the calendar. Written permission from the school or college Committee on Studies or the Program Administrator for Bachelor of Management is required if the normal workload is to be exceeded. Applications from students who give good reasons for working to take an overload will be considered. Such permission will normally be granted to any student in his first year of study, or to any student who, in the preceding academic term, obtained a grade point average of less than 3.00.

3.2 Summer Session

It is recommended that students take only six credit hours in each of the May - June or July - August parts of term. Students who want to exceed the recommended number of credit hours should speak to an academic advisor in their faculty, school or department.
4. Registration

1. It is a student's responsibility to register. Registration instructions are available on the web at [link]. Registration for courses is completed using the online_mPart of the Registration process is the submission of the Student Information Sheet. The preferred mode of submission for Part of the Registration process is the submission of the Student Information Sheet. The preferred mode of submission is through the online registration system, which is accessible at [link].

2. A student is considered registered after receipt of all course selection forms. Selection of courses is deemed to be an agreement by the student for the payment of all assessed fees.

3. All students are required to submit an ID card or validate an existing ID card at the DalCard Office.

4. Space in class. Enrollment is limited in all courses, and admission does not guarantee that space will be available in any course or section. However, a student in a graduating year may be excluded from a course required that student must meet degree program requirements because of lack of space. This rule does not apply to elective courses or all sections of courses. Any student in a graduating year who encounters such a situation should immediately consult the department chair, school director or dean.

5. Students may be removed from courses for which they do not have prerequisites. Prerequisite waivers can be granted only by the instructor and must be submitted in writing, with the instructor's signature, to the Registrar's Office.

ID cards are mandatory and must be presented to write an officially scheduled examination. In addition, some services such as the issuance of honorary or scholarship cheques, library privileges, Dalplex and Langille Athletic Centre require the presentation of a valid Dalhousie ID card.

5. Course Changes and Withdrawal

5.1 Course Changes

It is recognized that some students may wish to make changes in programs already arranged. Course changes will normally be completed during the first two weeks of courses. (For Summer term information, see the Summer School Schedule.) The last dates for adding and deleting courses are published in the schedule of Academic Course Add/Drop Dates, page 1 of this calendar. Course changes should be made at the website [link].

Please note that dropping or changing courses may affect your eligibility for student aid.

5.2 Withdrawal

Non-attendance does not, in itself, constitute withdrawal. Withdrawals are effective when a student withdraws from courses on the web at [link]. A written notification is then received at the Registrar's Office.

In the Faculty of Health Professions students who wish to withdraw from the university must obtain written approval from the appropriate school or college and submit the appropriate forms to the Registrar. Students should not discontinue attendance at any course until their withdrawal has been approved.

Students withdrawing voluntarily from the University should consult the individual faculty regulations and the Fees section of this Calendar. When the work of a student becomes unsatisfactory, or a student's attendance is irregular without sufficient reason, the faculty concerned may require withdrawal from one or more courses, or withdrawal from the Faculty. If a student is required to withdraw from a Faculty such a student may apply to another Faculty; however, in assessing the application, previous performance will be taken into consideration.

6. Counting of Credits for Two Dalhousie Programs

6.1 Undergraduate Degrees

Students who hold one undergraduate degree from Dalhousie and who wish to gain a second undergraduate degree must fulfill the requirements of the second degree and meet the following stipulations:

1. Only credit hours that are applicable to the program for the second degree may be counted for credit.

2. Each credit hour carried forward must have a grade of C or higher.

6.1.1 College of Arts and Science

For the honors degree, a minimum of 10 new full credits are to be taken, in accordance with "Degree Requirements" listed elsewhere in this calendar.

For the major (120 credit hour) BA degree, a minimum of 60 new credit hours, or the equivalent, must be taken. At least 18 of these are to be beyond the 1000 level in a new major subject, and at least 18 of the 36 must be beyond the 2000 level.

For the major (120 credit hour) BSc degree, a minimum of 60 new credit hours, or the equivalent, must be taken. At least 24 of these are to be beyond the 1000 level in a new major subject, and at least 24 of the 42 must be beyond the 2000 level.

For the 90 credit hour degree, a minimum of 45 new credit hours must be taken. At least 24 of these are to be beyond the 1000 level in a new area of concentration, and at least 12 of the 24 must be beyond the 2000 level. Normally, 12 credits will be in a subject other than the major.

Students may obtain a second BSc by completing the above requirements. More than one BA is not awarded.

6.1.2 Management

For the BCom co-op degree a minimum of 60 new credit hours (plus three work terms) must be taken, of which at least 48 must be in the core area and include the three work-term credits.

For the 90 credit hour (120 credit hour), a minimum of 60 new credit hours must be taken, and all core requirements must be counted for credit.

6.1.3 Health Professions

For degrees in the Faculty of Health Professions no more than half the credit required for an undergraduate degree may be carried forward from an earlier degree.

6.1.4 Architecture and Planning

For the BEDES degree, a minimum of one third of the credits required in the third and fourth years must be taken while registered in the BEDES program.

6.1.5 Computer Science and Engineering

For the BCom, BINF, and BEng degrees, a minimum of 60 new credit hours must be taken.

6.1.6 Transfer Credits from Dental Hygiene

Students who have completed the Diploma in Dental Hygiene at Dalhousie University may receive 30 credit hours towards a BSc or BEng.

6.1.7 Agriculture

For the BSc (Ag) a minimum of 60 new credit hours must be taken.

6.2 Counting of Credit for two Dalhousie Diplomas in Technology Programs

Students who hold one technology diploma from Dalhousie and who wish to gain a second technology diploma must fulfill the requirements of the second diploma and meet the following stipulations:

a. Only credits that are applicable to the program for the second diploma may be counted for credit.

b. Each credit hour carried forward must have a grade of C or higher.

c. At least half of the credits in the second diploma must be new credits.

6.3 Counting of Credit from Diploma in Technology to Undergraduate Programs

Students who have completed technology level courses may be eligible to receive degree level credit for such courses, to a maximum of 60 credit hours, evaluated on a course by course basis with a minimum grade of "C". Students who successfully complete a Technical Diploma program in the Faculty of Agriculture and apply to the Bachelor of Science (Agriculture) program will receive a minimum of 30 credit hours toward the degree.

6.4 Counting of Credit from Continuing Education Courses toward Diploma in Technology Programs

Special permission to complete a limited number of select continuing education courses in the Faculty of Agriculture may be granted to students enrolled in technology diploma programs. These courses must be approved in advance by the Dean or designate. Any student who wishes to explore this option should contact their academic advisor.
7. Transfer Students

7.1 Transfer Credits - All Faculties

As Dalhousie transfer credits may be granted for courses which are offered by a recognized university or equivalent institution of higher learning and which are considered to be equivalent to courses offered at Dalhousie and to be appropriate to a student’s academic program at Dalhousie. Transfer credit will be granted for any course in which a final mark of C or higher was obtained. Transfer credits are subject to the approval of the appropriate department/school/college. For courses not within the purview of a Dalhousie department/school/college, the Registrar’s Office will assess transfer credits. Students may appeal, in writing, a negative decision and should justify the inclusion of such courses in the student’s proposed program. Copies of calendar descriptions are necessary. Such descriptions are not normally included with univeristy transcripts, and it is the student’s responsibility to provide them.

Bachelor of Commerce and Bachelor of Management require course syllabi that includes the length of the course, topics covered, evaluation, textbook used, and required reading. College of Arts and Science and Faculty of Management courses that are more than 10 years old may not be used to fulfill degree requirements unless a waiver is granted. See Regulation 15, page 34 for information on other faculties.

Transfer credits may be counted towards fulfillment of the concentration, major or honors or Commerce/Management core area requirement of a bachelor’s degree with specific advance approval from the appropriate department/school/college at Dalhousie. To obtain a first degree or diploma, at least half of the credits, including at least half in the field of concentration or major or minor, must normally be taken at Dalhousie. For the BComm Co-op degree, a minimum of 60 credit hours (plus three workterms) must be taken, of which at least 48 must be in the core area and include the three workterm credits. For the BHealth degree, a minimum of 60 credit hours may be counted towards the program.

In the Faculty of Health Professions to obtain a first degree, all or most of the advanced work of the program (i.e., at least half the credits taken in the second and subsequent years of study) must be taken at Dalhousie.

Note: Transfer credits will not be awarded for work completed while a student was academically ineligible.

7.2 Architecture and Planning

For the BDes degree, a minimum of 60 credit hours of advanced level work must be taken at Dalhousie. The workload will not exceed Dalhousie’s limitations.

7.3 Computer Science

For the BCS and BSEN degrees, at least half of the credits must be taken at Dalhousie. 60 credit hours of CSCI courses, including 50 of the third and fourth year CSCI courses, must be taken at Dalhousie.

7.4 Engineering

For the BEng degree, at least half of the credits, including the final two-year term with a full course load, must be taken at Dalhousie. For the Bachelor of Applied Science, at least half of the credits for the degree must be taken at Dalhousie, including half in the major field.

7.5 Procedures

As soon as the student’s record has been assessed the Registrar’s Office will inform the student which transfer credits have been awarded. The number of credits which have been approved, and which Dalhousie courses may not be taken, will be included in the letter. If more credits have been approved than can be applied to the student’s program, the Registrar’s Office will decide the appropriate transfer credits. Transfer credits awarded on admission appear on a Dalhousie transcript as credits only, no marks are shown.

If by registration time the student has not received written confirmation of transfer credits, the student should check with the Registrar’s Office. Information, although incomplete, may be available and may be helpful in choosing Dalhousie courses.

Before selecting courses the student should consult with the appropriate department/school/college to determine how the transfer credits will fit into the student’s specific academic program at Dalhousie. Transfer credit will be granted for any course in which a final mark of C or higher was obtained.

7.6 Courses Taken at Other Universities on Letter of Permission

A student who wishes to take courses at other institutions while registered at Dalhousie must obtain approval in advance on a form available online at www.dal.ca/Reg. A Letter of Permission will be provided if all the following conditions are met:

• the student is in good academic standing, i.e., students who have been academically dismissed or are on probation are not eligible
• the student has not exceeded the allowable number of transfer credits
• the course at the other institution is acceptable for transfer to Dalhousie
• the workload will not exceed Dalhousie’s limitations

7.7 Advanced Standing

Students possessing advanced knowledge of a subject will be encouraged to begin their studies in that subject at a level appropriate to their knowledge, as determined by the department/school/college concerned. However, such students must complete, at Dalhousie, the full number of credit hours required for the particular credential being sought.

9. Part-Time Students

Part-time students are admitted to course work and programs offered in the College of Arts and Science. Admission requirements and regulations are the same for all students.

9.1 College of Arts and Science

Part-time students are admitted to most of the programs offered in the College of Arts and Science. Admission requirements and regulations are the same for all students.

9.2 Faculty of Management

The Faculty of Management is committed to providing students the opportunity to obtain a degree/diploma through full-time study and part-time study. Where the latter is feasible.

9.3 Faculty of Health Professions

Because of the restriction on the duration of undergraduate studies (see Academic Regulation 15, page 34), the opportunity for part-time study is limited in the majority of programs.

9.4 Faculty of Architecture and Planning

Part-time study is not available in the Bachelor of Environmental Design Studies (BEDS) program. Part-time study is available in the Bachelor of Community Design (BCD) program.
### 11. Experimental Courses—College of Arts and Science

Experimental courses, on any subject or combination of subjects to which arts or sciences are relevant, and differing in conception from any of the courses regularly listed in departmental offerings, may be formed on the initiative of students or faculty members.

If formed on the initiative of students, the students concerned shall seek out faculty members to take part in the courses. Whether formed on the initiative of students or on the initiative of faculty members, the faculty members who wish to take part must obtain the consent of their department.

The course may be offered over the regular session or for one term only.

A course shall be considered to be formed when at least one faculty member and at least eight students have committed themselves to taking part in it for its full length.

Courses may be formed any time before the end of the second week of courses in the fall term to run the regular session or fall term, or any time before the end of the second week of courses in the winter term. If they are formed long enough in advance to be announced in the calendar, they shall be so announced, in a section describing the Experimental Programs, if they are formed later, they shall be announced (a) in the Dalhousie Gazette, (b) in the Dalhousie Calendar, and (c) on a central bulletin board set aside for this purpose.

One faculty member taking part in each experimental course shall be designated the rapporteur of the course with responsibility for (a) advising the curriculum committee of the formation and content of the course; (b) obtaining from the curriculum committee a ruling as to what requirements or arrangements of distribution, concentration, and credit the course may be accepted as satisfying; (c) reporting to the Registrar on the performance of students in the course; (d) reporting to the curriculum committee, after the course has finished its work, on the subjects treated, the techniques of instruction, and the success of the course as an experiment in pedagogy (judged so far as possible on the basis of objective comparisons with more familiar types of courses).

Students may have 30 credit hours of experimental courses (or some equivalent combination of these with half-credit courses) credited as satisfying course for any of the requirements for the degree, subject to the rulings of the relevant curriculum committee (above) and to the approval of the departments.

### 12. Summer School

12.1 Summer Session

Dalhousie currently offers a Summer session of approximately 16 weeks, May - August. See Regulation 3.2 for permitted work-load.

### 13. International Exchange and Study Abroad Programs

A number of programs enable Dalhousie University students to pursue part of their studies in another country and culture. For details regarding courses taken at other universities, see Regulation 7.6, page 34.

University-wide programs allow students from a variety of academic departments to take part in a study abroad or exchange program. These are coordinated by the Study and Exchange Advisor in International Centre, located in the Killam Library, main floor. Department-specific programs are coordinated by an individual within the department/faculty. Additional information is available at: [www.dal.ca/exchange](http://www.dal.ca/exchange).

It is important to note that there are application deadlines for these programs; plans to apply up to a year prior to departure.

### 14. Preparation for Other Programs

Work in the College of Arts and Science is a prerequisite for various programs in other faculties and other institutions. A brief summary of the academic work required for admission to certain programs is given here. Further information may be found later in this calendar, or in the Faculty of Graduate Studies calendar or the Dentistry, Law and Medicine calendar.

**Graduate Studies:** The normal requirement for admission to a graduate program is an honours degree or the equivalent.

Students who are registered in an honours program may, with permission from their supervisor and the course instructor, be eligible to complete up to six credit hours of study at the graduate level. These credits could be used in place of undergraduate degree requirements toward completion of the undergraduate degree. With permission of the program's graduate coordinator and the Faculty of Graduate Studies, such credits may also be applied to a subsequent Master's degree in some programs. Please consult the Graduate Calendar, section 3.7 Advanced Placement, for details.

Students registering in any graduate level course, regardless of their level of study, will be graded in accordance with the grading scale and must obtain a grade of C- or higher in order to receive credit. For courses that are cross-listed between the undergraduate and graduate level, students who register in the graduate level course may switch to the corresponding undergraduate course by the dates specified in the Academic Dates listed at the front of the Calendar.

**Architecture:** Two years of university study are required for entry to the BDES program in architecture. For details, see the Architecture section in this calendar.

**Dental Hygiene:** Completion of 30 credit hours at the university level of one regular session's duration in the following: biology, psychology, social work, a writing course, one term course in introductory statistics and one term course in introductory chemistry. For details, see the Dentistry, Law and Medicine calendar.

**Dentistry:** See the Dentistry, Law and Medicine calendar.

**Design:** Students completing one year in the College of Arts and Science at Dalhousie may be admitted into the second year of the four year program leading to the Bachelor of Design degree in communication design at the NSCAD University.

**Law:** At least two years of work leading to one of the degrees of BA, BSc, BComm, or BPhot. For details, please see the Dentistry, Law and Medicine calendar.

**Medicine:** A BA, BSc, BComm, or BPhot degree. For details, see the Dentistry, Law and Medicine calendar.

**Veterinary Medicine:** The equivalent of 20 one-term courses (two years of university-study) are required for admission to the Atlantic Veterinary College of the University of Prince Edward Island. Credits must include two mathematics courses, including statistics; four biology courses, including genetics and microbiology; three chemistry courses including organic chemistry; one physics course; two English courses, including one with an emphasis on writing; three humanities and social sciences courses; five electives from any discipline.

### 15. Duration of Undergraduate Studies

15.1 College of Arts and Science/Faculty of Management

Students are normally required to complete their undergraduate studies within 10 years of their first registration, and to comply with the academic regulations in force at the time of that registration. This is also the normal limit for transfer credits. However, the student appeals committee of the appropriate Faculty or School may grant permission in certain studies for a reasonable further period, subject to such conditions as the committee deems appropriate and with the
Students should be aware that certain courses at the University involve required laboratory work where potentially hazardous materials are in use. These may include animals, other biological materials which may include crops and products, tissues, fluids, toxins, but also radioactive isotopes and xenon as well as a wide variety of chemicals. Examples of physical hazards may include noise, radioactive isotopes and non-ionizing radiation (e.g. lasers). Since there are potential health risks associated with the improper handling of such materials resulting in exposure, Dalhousie University requires that, as a condition of taking a course where such materials are to be used, students must read and agree to comply with the instructions for safe handling of such materials. In the event that students do not comply with the instructions for safe handling of such materials, students will receive no credit for the required laboratory work unless the instructor, the appropriate college or department, and the student agree that arrangements are not possible and students should consider enrolling in a different course.

16.1.1 Academic Accommodation for Students with Learning Disabilities
See Accommodation Policy page 21

16.2 Examinations and Tests
Tests are normally scheduled during course time. Tests scheduled outside course time should not conflict with the regularly scheduled courses. Dates and times must be included in the course syllabus.

Periods of approximately three weeks in the spring and one and one-half weeks in December are set aside for the scheduling of formal written examinations by the Registrar. Instructors wishing to have examinations scheduled by the Registrar for their courses must so inform the Registrar at the beginning of the first week of classes in the fall and winter terms. Instructors may also arrange their own examinations at times and places of their choosing during the formal examination periods, with the understanding that in cases of conflict of examinations for an individual student, the Registrar’s examination schedule takes priority.

16.2.1 College of Arts and Sciences, Faculties of Agriculture, Architecture and Planning, Computer Science, Engineering, Health Professions and Management

No written tests or examinations, with the exception of project presentations and major papers, worth more than 25% of the final grade, may be held in the last two weeks of a term, without the explicit approval of the appropriate faculty, school, or college. No tests may be held at the end of courses and the beginning of the official examination period with the exception of those activity modules and laboratory courses in the Faculty of Health Professions in which special facilities are required.

Students may contact the dean/director’s office of the appropriate faculty/school/college for assistance if they are scheduled for more than two examinations on the same day.

16.3 Submission of Grades
On completion of a course, the instructor is required to submit grades to the Registrar. Grades are due seven calendar days after an exam scheduled by the Registrar or 14 days after the last class where there is no final exam scheduled by the Registrar. Such grades are to be based on the instructor’s evaluation of the academic performance of the students in the course in question.

16.4 Incomplete
Students are expected to complete course work by the prescribed deadlines. Only in special circumstances (e.g., the death of a close relative) may an instructor extend such deadlines. Incomplete work in a course must be completed by:

Full-term courses ................................................................. Feb 1
Winter and regular session (September - April) courses ........ Jan 1
May - June courses ................................................................ Aug 1
May - August courses .......................................................... Oct 1
July - August courses .......................................................... Oct 1

Exceptions to this rule will normally be extended only to courses which require field work during the summer months. At present the list of these courses consists of:

- ENV 3000, 3001, 4901, 4902, 4952,
- ENV 4902, 4903, 4904, 4905, 4906,
- ENV 4907, 4908, 4909, 4910, 4911,
- ENV 4912, 4913, 4914, 4915, 4916,
- ENV 4917, 4918, 4919, 4920, 4921,
Students taking any of these courses in their final year should note that they will not be able to graduate at the spring convocation. The Registrar’s Office is not permitted to accept a late clearance of IN to late grade changes other than those due to errors. If there are exceptional circumstances, a recommendation should be forwarded to the undergraduate coordinator or the Committee on Studies of the appropriate faculty/school. Unless IN is changed it counts in the GPA and has a grade point value of 0.00 – it is a failing grade.

16.5 Supplements

Faculties of Engineering and Health Professions

In courses where supplements are available, a student must have achieved a grade of "FM" in the course in which the supplement is to be written. On re-examination of the course, the student must have achieved a grade of "FM" to be eligible to write a supplemental examination. In the Faculty of Health Professions, the highest grade that can be awarded is "C" for professional courses and "D" for other courses. Only the supplemental grade will be included in the grade point average.

Supplemental exams will be administered by the participating faculty/school/college. Students should check directly with their faculty/school/college for detailed information on the awarding of FM grades and eligibility for supplemental examinations.

16.6 Special Arrangements for Examinations, Tests and Assignments

As the discretion of the instructor, alternate arrangements for examinations, tests or the completion of assignments may be made for students who are ill, or in other exceptional circumstances.

Where illness is involved, a certificate from the student’s physician will be required. This certificate should indicate the dates and duration of the illness, when possible should describe the impact it had on the student’s ability to fulfill academic requirements, and should include any other information the physician considers relevant and appropriate. To obtain a medical certificate, students who miss examinations, tests or the completion of assignments should contact the University Health Services or their physician at the time they are ill and should submit a medical certificate to their instructor as soon thereafter as possible. Such certificates will not normally be accepted after it is more than the time limit above.

Where illness is involved, a certificate from the student’s physician will be required. This certificate should indicate the dates and duration of the illness, when possible should describe the impact it had on the student’s ability to fulfill academic requirements, and should include any other information the physician considers relevant and appropriate. To obtain a medical certificate, students who miss examinations, tests or the completion of assignments should contact the University Health Services or their physician at the time they are ill and should submit a medical certificate to their instructor as soon thereafter as possible. Such certificates will not normally be accepted after it is more than the time limit above.

Requests for alternate arrangements should be made to the instructor in all cases. The deadline for changing a grade of ILL is:

- Fall term courses ................................................. Feb 1
- Winter and regular session (September - April) courses .......... Jan 1
- May - June courses ................................................. Aug 1
- May - August courses .............................................. Oct 1
- July - August courses ............................................. Oct 1

16.7 Reassessment of a Final Grade

Students who have questions about final grades that are assigned are encouraged to discuss them with the course instructor. In addition, students may consult the chair of the department, director of the school/collage, dean of the faculty, an academic advisor or a student advocate. If their concerns cannot be resolved, students may also use the formal process that follows for the re-assessment of final grades, except when such grades are the result of an academic discipline penalty.

Once a final course grade has been submitted to the Registrar, a student who wishes to have a final grade reassessed should make a written request to the Registrar and pay the requisite fee of $50 per course. The request must identify the specific component which the student wishes to re-assessed and the grounds for the request. Such requests must be made by:

- Fall term courses ................................................. Mar 1
- Winter and regular session (September - April) courses .......... Jul 1
- May - June courses ................................................. Jul 1
- May - August courses ............................................ Sep 1
- July - August courses ........................................... Nov 1

When such a request is received, the Registrar will forward it to the dean of the faculty or director of the school/collage offering the course. The re-assessment will be conducted according to procedures developed for the purpose by the faculty/school/collage. These should reflect the nature of the academic disciplines and assessment involved, and should provide for a review of the assessment by a qualified person or persons not responsible for the original evaluation.

17. Academic Standing

Students’ academic standing is normally assessed at the end of each term.
17.1 Grade Scale and Definitions

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade Point Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.00</td>
<td>Excellent evidence of original thinking, independent research, originality and leadership, outstanding grasp of subject matter, evidence of scientific knowledge, a broad base of learning.</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
<td>Outstanding</td>
</tr>
<tr>
<td>A-</td>
<td>3.70</td>
<td>Distinction</td>
</tr>
<tr>
<td>B+</td>
<td>3.30</td>
<td>High credit</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
<td>Credit</td>
</tr>
<tr>
<td>B-</td>
<td>2.70</td>
<td>Credit -</td>
</tr>
<tr>
<td>C+</td>
<td>2.30</td>
<td>Neutral</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
<td>Neutral and credit</td>
</tr>
<tr>
<td>C-</td>
<td>1.70</td>
<td>Neutral and credit -</td>
</tr>
<tr>
<td>D+</td>
<td>1.30</td>
<td>Discredit</td>
</tr>
<tr>
<td>D</td>
<td>1.00</td>
<td>Discredit -</td>
</tr>
<tr>
<td>E</td>
<td>0.00</td>
<td>No credit</td>
</tr>
</tbody>
</table>

For institutions outside of Canada, a grade of P (pass) or F (fail), as appropriate, will be translated into a Dalhousie grade and corresponding grade points assigned. For institutions that use a grading system not included in the above, the appropriate Dalhousie letter grade and corresponding grade points will be assigned. For institutions outside of Canada, a grade of P (pass) or F (fail), as appropriate, will be translated into a Dalhousie grade and corresponding grade points assigned.

18. Good Standing

Students who meet the required GPA are considered to be in good academic standing. In the Faculties of Agriculture, Architecture and Planning, Arts and Social Sciences, Computer Science, Engineering, Health Professions, Management and Science a cumulative GPA of 2.00 is required.

19. Probation

19.1 Faculty of Agriculture, Architecture and Planning, Arts and Social Sciences, Computer Science, Engineering (Lower Division, Years 1 and 2 and Bachelor of Applied Science), Health Professions, Management and Science

19.1.1 - Students with a cumulative GPA of less than 2.00 and greater than or equal to 1.70 who have completed at least 24 credit hours will be placed on academic probation.

19.1.2 - Students on probation are allowed to continue to register on probation provided their term GPA is at least 2.00. Students will be returned to "good standing" when they achieve a cumulative GPA of 2.00. Students on probation who do not achieve a term GPA of 2.00 will be academically dismissed.

19.1.3 - Students require a cumulative GPA of 2.00 to graduate. Therefore, no one will be allowed to graduate while on probation.

19.2 Faculty of Engineering (Upper Division, Years 3 and 4)

19.2.1 - Students in the Bachelor of Engineering (Upper Division) with a cumulative GPA of less than 2.00 and greater than or equal to 1.70 who have completed at least two fall credits will be placed on academic probation.

19.2.2 - Students on probation may continue to register on probation provided their term GPA is at least 2.00. Students will be returned to "good standing" when they achieve a cumulative GPA of 2.00. Students on probation who do not achieve a term GPA of 2.00 will be academically dismissed.

19.2.3 - Students require a cumulative GPA of 2.00 to graduate. Therefore, no one will be allowed to graduate while on probation.

20. Academic Dismissal

20.1 Academic Dismissal - Faculties of Agriculture, Architecture and Planning, Arts and Social Sciences, Computer Science, Engineering (Lower Division, Years 1 and 2 and Bachelor of Applied Science), Health Professions, Management and Science

20.1.1 - Students with a cumulative GPA of less than 1.70 who have completed at least 24 credit hours will be academically dismissed for a 12 month period. Students require a cumulative GPA of 2.00 to graduate. Therefore, no one will be allowed to graduate while on probation.

20.1.2 - Students with a cumulative GPA of less than 1.70 who have completed at least 24 credit hours will be academically dismissed for a 12 month period.

20.1.3 - Students with a cumulative GPA of less than 2.00 and greater than or equal to 1.70 who have completed at least two fall credits will be placed on academic probation.
20.1.2 - Students on probation who do not achieve a term GPA of 2.00 or greater will be academically dismissed for a twelve month period.

20.1.3 - Students who have been academically dismissed will not be allowed to apply for readmission for at least twelve months.

20.1.4 - Students who have been academically dismissed for the first time and have subsequently been re-admitted after an absence of a twelve month period may re-register on probation.

20.1.5 - Faculty of Arts and Social Science students who have been academically dismissed for the second time will not normally be allowed to apply for re-admission for at least three calendar years. Students may, however, petition the Student Affairs Committee for re-admission after two years provided they have met the Academic Forgiveness requirements.

20.1.6 - Faculty of Health Professions students who have been academically dismissed twice will not be allowed to apply for re-admission.

20.1.7 - Faculty of Engineering (Upper Division, Years 3 and 4) students who have been dismissed and who have been required to withdraw from the university for one term or more may be readmitted to a program in the Faculty of Computer Science only once.

20.1.8 - Faculty of Science students who have been required to withdraw for a second time must meet with the Assistant Dean (Student Affairs) who may recommend that they qualify for re-admission following a second calendar year of study or who may refer the matter to the Faculty Committee on Studies and Appeals.

20.1.9 - Faculty of Science students who have been required to withdraw for a second time must meet with the Assistant Dean (Student Affairs) who may refer the matter to the Faculty Committee on Studies and Appeals.

20.1.10 - Faculty of Management (Upper Division, Years 3 and 4) Students who have been academically dismissed for the second time will not normally be allowed to apply for re-admission for at least three calendar years. Students may, however, petition the Program Director for re-admission after two years.

20.1.11 - Faculty of Agriculture students who have been academically dismissed for the second time will not normally be allowed to apply for re-admission for at least three calendar years. Students who have been dismissed for either the first or second time may appeal this decision (see section 24 of the academic calendar).

20.2 Faculty of Engineering (Upper Division, Years 3 and 4) -

20.2.1 - Students with a cumulative GPA of less than 1.70 who have completed at least 12 credit hours will be academically dismissed for an eighteen month period.

20.2.2 - Students on probation who do not achieve a term GPA of 2.00 or greater will be academically dismissed for an eighteen month period.

20.2.3 - Students who have been academically dismissed will not be allowed to apply for re-admission for at least three calendar years. Students who have been dismissed for either the first or second time may appeal this decision (see section 24 of the academic calendar).

20.2.4 - Students who have been academically dismissed for the first time and have subsequently been re-admitted after an absence of an eighteen month period, may re-register on probation.

20.2.5 - Students who fail the same course more than once will be dismissed.

20.2.6 - Students who have been academically dismissed for a second time will not be readmitted to any engineering program at Dalhousie.

20.3 Faculty of Health Professions - Suspension or Dismissal from a Program on the Grounds of Professional Unsuitability

20.4 Policy on Academic Forgiveness

The Academic Forgiveness policy allows a returning student to apply to the Registrar’s Office for academic forgiveness of his/her prior cumulative grade point average. The policy is designed for undergraduate and technology students who have had a period of absence from their academic program and have demonstrated acceptable academic performance following their return. The Academic Forgiveness policy is subject to the following regulations.

20.4.1 Regulations

1. Academic Forgiveness applies only to returning undergraduate and technology students who have had an absence of at least three calendar years from their program or faculty at Dalhousie University.

2. For undergraduate students, a minimum of 24 credit hours of coursework, or for Diploma in Technology students, a minimum of eight credit hours, with a grade point average of at least 2.0, must be completed after returning before a written request for Academic Forgiveness may be submitted to the Registrar’s Office.

3. Academic Forgiveness will affect the student’s cumulative grade point average in all courses taken after the three-year absence. Academic Forgiveness applies to all courses taken at all colleges/universities during the forgiveness period, not only selected courses or terms.

4. No punitive grades resulting from an Academic Discipline decision will be forgiven.

5. A student can have the Academic Forgiveness policy applied to his or her academic record only once.

With the approval of the Registrar or designate, in consultation with the Dean, the student will be granted Academic Forgiveness. The student’s transcript will remain a record of all coursework completed and original grades obtained. Courses taken prior to the three or more year absence will not be used in computing the student’s cumulative grade point average, with the exception of punitive grades awarded as the result of an Academic Discipline decision. Students will be eligible to retain credit for courses in which they received a passing grade. Students will be required to complete at least half the credits required for their academic program following Academic Forgiveness before they will be eligible to graduate.

The transcript will have “Academic Forgiveness” noted on it at the end of the last term for which the student receives forgiveness.

21. Graduation Standing

Note that students entering the College of Pharmacy in September 1997 or later should consult the College of Pharmacy for information on graduation and scholarship standing.

21.1 Minimum Cumulative GPA

21.1.1 - A minimum cumulative GPA of 2.00 is required for the awarding of an undergraduate degree in the Faculties of Agriculture, Architecture and Planning, Arts and Social Sciences, Computer Science, Engineering, Health Professions, Management and Science.

A minimum cumulative GPA of 2.00 is required for the awarding of Diploma in Technology in the Faculty of Agriculture. For details on the required standing for graduation in honours programs, see the Degree Requirements section of this calendar for the Faculties of Arts and Social Sciences, Science and the appropriate faculty/school section for honours programs in other faculties.

21.2 Graduation with Distinction

Faculties of Agriculture, Architecture and Planning, Arts and Social Sciences, Computer Science, Engineering, Science and Management

A cumulative GPA of 3.70 is required to graduate with distinction. For the purpose of determining whether a student will graduate with distinction, all courses taken while registered in a level of study at Dalhousie, including courses taken on letter of permission, repeated courses, and courses for which non-passing punitive grades were awarded, are included. At least half of the courses must be completed at Dalhousie. The notation “Distinction” will appear on the transcript.

Faculty of Health Professions

A cumulative GPA of at least 3.70 is required to graduate with Distinction from the Faculty of Health Professions programs. For the purpose of determining whether a student will graduate with distinction: credits that are transferred into a degree program from other Dalhousie programs are included in final GPA calculations, credits from programs outside Dalhousie taken prior to program calculations, credits from programs outside Dalhousie taken prior to program
40 Academic Regulations

21.3 Scholarship Standing

Please see Awards Section, Scholarship GPA, page 207, for information on the GPA required for scholarship purposes.

22. Graduation

In order to graduate students must submit an Intention to Graduate Form to the Registrar’s Office by the deadlines indicated:

Graduation Month | Deadline
--- | ---
May | December 1
October | July 1

In cases where requests can be accommodated after the deadline, a $50 fee will be charged.

23. Dean’s List

23.1 Eligibility

Full-time students will be assessed for eligibility for the Dean’s list at the end of each academic term. Students who achieve a term GPA of 3.85 will be placed on the Sexton Scholar List.

Part-time students will be considered once at the end of each academic year. For this purpose, a part-time student is one who takes at least nine credit hours during the academic year but less than nine credit hours in any one term in the academic year. The student must achieve a GPA of 3.70 in every term in the academic year.

NOTES:
1. The number of students placed on the Dean’s list will normally not exceed 15% of the class.
2. Students registered for full-year courses, i.e., courses that run from September through April will be considered for the Dean’s list when full-year course results are available.
3. The notation “Dean’s List” will appear on the transcript.

23.2 Sexton Scholar List

Students in the Faculties of Architecture and Planning, Computer Science, and Engineering who have achieved a cumulative GPA of 3.85 upon graduation will be placed on the “Sexton Distinction List”. The notation “Sexton Distinction” will appear on the transcript.

23.3 Sexton Distinction List

Students in the Faculties of Agriculture and Planning, Computer Science, and Engineering who have achieved a cumulative GPA of 3.85 upon graduation will be placed on the Sexton Distinction List. The notation “Sexton Distinction” will appear on the transcript.

24. Appeals

24.1 Appeals for Students with Learning Disabilities

Appeals by students with learning disabilities will follow the usual procedures of the relevant faculty at Dalhousie University. See Accommodation Policy, page 217.

24.2 College of Arts and Science/Faculty of Management/ Faculty of Agriculture

Any student who believes they will suffer undue hardship from the application of any of the academic regulations may appeal for relief to the academic appeals committee of the faculty or school in which they are registered. Students wishing to appeal a decision based on faculty/school regulations must complete an “Application for a Waiver of an Academic Regulation” form, available online at www.dal.ca/campus_life/student_services/academic_support/academic_appeals.html or in the Registrar’s Office. The arguments and expectations of the petitioner must be clearly stated.

An appeal from a student, arising from an academic dismissal from the faculty should be addressed to the Assistant Dean in the Faculty of Arts and Social Sciences, the Committee on Studies and Appeals in the Faculty of Science, Academic Director, Undergraduate Programs, in the Faculty of Management, or to the Assistant Dean, students in the Faculty of Agriculture, as appropriate.

24.3 Faculty of Architecture and Planning

Appeals should be directed to the School of Architecture office or the School of Planning office.

24.4 Faculty of Computer Science

Appeals should be directed to the Academic Appeals Committee.

24.5 Faculty of Engineering

Appeals should be directed to the Academic Appeals Committee.

24.6 Faculty of Health Professions

School/College Committee on Undergraduate Student Appeals

Contact the School/College or Faculty of Health Professions office for the complete terms of reference for the Committee on Undergraduate Student Appeals and the application regarding academic appeals.

Faculty Committee on Undergraduate Student Appeals

The jurisdiction of the Faculty Committee on Undergraduate Student Appeals is to hear academic appeals beyond the school/college level when the approved appeal regulations and procedures of the respective school/college have been fully exhausted by the student. Decisions of the Faculty Committee may be appealed to the Senate Academic Appeals Committee.

The Committee has no jurisdiction to hear student appeals on a matter involving a requested exemption from the application of faculty or university regulations or procedures except when irregularities or unfairness in the application thereof is alleged. This means that only procedural issues and not the merits of the case, are subject to appeal.

25. Changes in Regulations

In general, any change to academic regulations which affects a currently registered student adversely will not apply to that student. Any student suffering undue hardship from application of any of the academic regulations may appeal for relief to the appropriate academic appeals committee as in Section 24.
II. Pathways

Our Pathways Division provides options for those who may require some additional preparation to ensure their success or those who may not be taking a traditional approach to university admission. Pathways programs are: Transition Year Program (TYP), University Preparation classes (UPrep) and English as a Second Language Programs (ESL). We also offer Mature Student Advising for older students returning to learning.

1. Transition Year Program

Address: 1499 Lehmann Street
PO Box 15000
Halifax, NS B3H 4R2
Phone: (902) 494-2135
Fax: (902) 494-3662
Website: http://collegeofcontinuinged.dal.ca/Transition-Year-Program

TYP has served the post-secondary educational needs of the Mi'kmaq and Black Nova Scotian communities for over 40 years. It is a one-year program designed for African-Canadian and First Nations students who wish to enter university but who do not yet meet standard entrance requirements. TYP was established to address historical and current educational disadvantages to members of the Mi'kmaq and Black Nova Scotian communities.

TYP prepares its students for full admission to Dalhousie BA degree programs at the beginning of their second year on campus. Some students may qualify for entry into other degree programs at Dalhousie. The program introduces students to the university in a variety of ways. Its curriculum, which includes a variable number of non-credit classes, is adapted to individual needs and objectives. TYP core curriculum includes classes in Black and Native Studies, Strategies for University Learning, English and Mathematics. Students may also choose a regular first-year elective. Classroom instruction is complemented by an orientation session, special lectures, campus tours, workshops and field trips. The program’s staff are drawn from the Dalhousie University community as well as the Nova Scotian Black and First Nations communities.

2. University Preparation Classes

Address: 1499 Lehmann Street
PO Box 15000
Halifax, NS B3H 4R2
Phone: (902) 494-2135
Fax: (902) 494-3662
Website: http://collegeofcontinuinged.dal.ca

Dalhousie offers a “bridging program” for high school and mature students who are not fully prepared to start university or for those needing assistance in a particular subject area while enrolled in university. The university prep classes offered through the College are designed to help students develop their academic skills in a specific subject, improve their marks, complete a prerequisite to enter a specific university program and build confidence before taking a university credit class.

University Preparation Classes Offered

The Writing Skills for Academic Study class prepares students for the writing demands in all university level classes and is accepted by Dalhousie in place of NS English 12. University Prep Chemistry is accepted in place of NS Chemistry 12 and may be used as the prerequisite for all Dalhousie first-year chemistry classes. Math 0010: Pre-Calculus and Math 0011: Pre-Calculus Plus are accepted in place of NS Math 12 Pre-Calculus and enable students to pursue university math and science classes. Math 0009 0.5: Academic Math is accepted in place of NS Math 12 for entrance to the Faculty of Arts, Bachelor of Commerce, Management and Nursing programs. PHY 0010.00: University Prep Physics is
Applicants must have completed grade 12 English (or equivalent) with a minimum grade of 65. Admission to some programs will require completion of other required subjects.

A student admitted on this basis may be restricted in the number of classes he/she can register in during the first year. Otherwise, these students have the same rights, privileges and responsibilities as other students within their program.

Services include pre-admission counselling and university preparation classes such as Writing Skills for Academic Study, Chemistry, Physics, Biology, Academic Math and Pre-Calculus.

III. Professional Development

In an era of decreasing resources and increasing demand, effective management development and training is crucial in every sector and organization. The College has long provided programs designed to meet the needs of the business, governmental and voluntary sectors.

For more than 30 years Dalhousie University has been a leading Canadian provider of professional development in Engineering, Management and Technology. Our programs are offered in Halifax and major centres across Canada in a variety of formats including seminars, short classes, and certificate programs.

Programs are facilitated by instructors from both industry and academia, many of whom have international consulting and lecturing experience.

We offer unique certificate programs that enable participants to consolidate their knowledge and enhance their experience in specific technical areas. Programs are multiple classes assembled to deliver a comprehensive understanding of the critical topic issues.

Those who do not wish to complete a full certificate program are welcome to register for individual classes. Conversely, those who have taken component classes of a certificate program can submit their application for admission to complete the full certificate.

Certificates

• Certificate in Computer Science
• Certificate in Information Systems Management
• Certificate in Software Management and Development
• Certificate in Information Design and Management for the Web
• Business Analysis Certificate
• Technical Writing Certificate
• Certificate in Quality Management
• Certificate in Project Management (Classroom Delivery)
• Certificate in Advanced ISO 9001:2008 Implementation and Management (AIM-2008)
• Certificate in Leadership Development
• Certificate in Negotiation and Conflict Resolution
• Certificate in Environmental Management
• Certificate in Occupational Health and Safety Management
• Certificate in Ergonomic Program Management
• Canadian Risk Management (CRM) Designation
• Home Inspection Certificate

The following are available by distance education:

• Certificate in Business Management
• Certificate in Financial Management
• Certificate in Human Resource Management
• Certificate in Local Government Administration
• Certificate in Local Government Financial Administration
• Certificate in Local Government Human Resources Administration
• Certificate in Local Government Law and Ethics
• National Advanced Certificate in Local Government Administration
• Certificate in Fire Service Leadership
• Certificate in Fire Service Administration
• Certificate in Hazardous Materials
• Police Leadership Certificate
• Advanced Police Leadership Certificate
• Introduction to Employment Services
• Improving Non-Profit Governance
• Certificate in Project Management (Online option)
• Certificate in Process Improvement and Control (Online option)
The College also works with Dalhousie and external partners to offer specialized programs. Each of these programs incorporates distance education in their delivery.

The Certified Employee Benefit Specialist (CEBS) Program is offered in partnership with the International Foundation of Employee Benefit Plans in Brookfield, Wisconsin. This professional designation program is aimed at benefit managers, consultants, human resource administrators, investment specialists, professionals, insurance company representatives, trust officers and others interested in employee benefits.

The Credit Union Institute of Canada (CUIC) Management Studies and General Studies Programs are offered in cooperation with CUSOURCE and designed for credit union employees across Canada. The Credit Union Director Achievement (CUDA) Program is offered by CUSOURCE and jointly certified by Dalhousie University.

IV. Consultation

Based on the expertise of its resident and associated faculty, the College offers consulting in the areas of: Municipal Management, Fire and Police Management; Distance Education Design, Survey Research; Adult Education; Workshops, and Focus Groups; Community Development; and Needs Assessment.
II. Degree Programs

The College offers unique interdisciplinary undergraduate programs in Environment, Sustainability and Society (ESS), in the Bachelor of Arts, Bachelor of Computer Science, Bachelor of Management, Bachelor of Science, Bachelor of Computer Science, Bachelor of Journalism, and Bachelor of Informatics programs.

- Bachelor of Arts (BA): ESS can be subject A or B with any major or honours subject in the Faculty of Arts and Social Science or the Faculty of Science.
- Bachelor of Science (BSc): ESS can be subject A or B with any major or honours subject in the Faculty of Science. ESS can be subject B in the BSc double major or combined honours with Computer Science.
- Bachelor of Management (BMan): ESS can be done as a minor.
- Bachelor of Community Design (BCD): ESS can be subject B of a double major or honours, double major.
- Bachelor of Computer Science (BSc): ESS can be done as a minor.
- Bachelor of Journalism (BJH): ESS can be subject B of the BJH combined honours.
- Bachelor of Informatics (BInf): ESS can be done as a minor.

Program Requirements

A. BA, BSc, Double Major/Combined Honours, Environment, Sustainability and Society

i. Environment, Sustainability and Society as Subject A

- SUST 1000.06 (one full credit in fall term)
- SUST 1001.06 (one full credit in winter term)
- • SUST 2000.06 (one full credit in fall term)
- • SUST 2001.06 (one full credit in winter term)
- • SUST 3000.03
- • SUST 3502.03
- • SUST 4000V/Y.06

Double Major

- three full credits (18 credit hours) ESS electives (at least two credits outside subject B)
- may be combined with minor(s)

Combined Honours

- two full credits (12 credit hours) ESS electives (at least one credit outside subject B)
- • SUST 4000X/Y.06
- Cumulative GPA in Honours subject courses of 3.3, with no individual grade less than C
- may be combined with minor(s)

Subject B: Any Major/Honours subject in the Faculties of Arts and Social Sciences or Science

For detailed requirements, please consult the Calendar and Academic Advisor for your allied subject.

ii. Environment, Sustainability and Society as Subject B

Subject A: Any Major/Honours subject in the Faculties of Arts and Social Sciences or Science or Computer Science

For detailed requirements, please consult the Calendar and Academic Advisor for your allied subject.

Subject B: Environment, Sustainability and Society

- SUST 1000.06 (one full credit in fall term)
- • SUST 1001.06 (one full credit in winter term)
- • SUST 2000.06 or SUST 2001.06
- • one additional full credit (six credit hours) in SUST at the 2000 level or above
- • three credits (18 credit hours) from the approved list of ESS elective (at least two credits outside subject A)
- • at least two full credits (12 credit hours) must be at the 3000 level or above.

General Degree Requirements

For BA and BSc students, either SUST 1000.06 or SUST 1001.06 satisfies the writing requirement. For BA students either SUST 1000.06 or SUST 1001.06 satisfies the Life and Physical Sciences requirement. For BSc students either SUST 1000.06 or SUST 1001.06 satisfies the Science Requirement. For general BA/BSc degree requirements, please go to page 732.
Subject A: Community Design
See School of Planning for specific requirements

Subject B: Environment, Sustainability and Society
- SUST 1000.06 (one full credit in fall term)
- SUST 1001.06 (one full credit in winter term)
- SUST 2000.06 (one full credit in fall term)
- SUST 2001.06 (one full credit in fall term)
- SUST 3000.03
- SUST 3002.03
- SUST 4000C/406
- One credit (six credit hours) from the approved list of ESS electives, outside PLAN
- SUST 1000.06 satisfies the BCD English writing requirement
- SUST 1000.06 and SUST 1001.06 both satisfy the science requirement and social science requirement for BCD students

C. BCD Honours, Double Major in Community Design (Environmental Planning or Urban Design and Planning) and Sustainability
Qualified BCD students may apply for the Honours program in year 3. See School of Planning for details.

Subject A: Environmental Planning or Urban Design and Planning
See School of Planning for specific requirements

Subject B: Environment, Sustainability and Society
- SUST 1000.06 (one full credit in fall term)
- SUST 1001.06 (one full credit in winter term)
- SUST 2000.06 (one full credit in fall term)
- SUST 2001.06 (one full credit in fall term)
- SUST 3000.03
- SUST 3002.03
- SUST 1000.06 satisfies the BCD English writing requirement
- SUST 1000.06 and SUST 1001.06 both satisfy the science requirement and social science requirement for BCD students

D. BMgmt Major in Environment, Sustainability and Society
See Faculty of Management, Bachelor of Management Degree program for general requirements
- SUST 1000.06 or (SUST 1001.06)
- SUST 2000.06 or SUST 2001.06
- Three credits (18 credit hours) from the approved list of ESS electives (at least two credits outside MGMT and at least two credits at the 3000 level or above)
- SUST 1000 or SUST 1001 satisfy the first year ESS Major requirement, however, SUST 1000 also satisfies the BMgmt Writing requirement and can be more easily accommodated in the first year BMgmt schedule. SUST 1001 does not satisfy the BMgmt Writing Requirement.

E. BCSc Minor in Environment, Sustainability and Society
- SUST 1000.06
- SUST 1001.06
- SUST 2000.06 or 2001.06
- two full credits (12 credit hours) from approved list of ESS electives at the 3000 level or above
- one full credit (six credit hours) from approved list of ESS electives at the 2000 level or above

F. BJH Combined Honours in Journalism and Environment, Sustainability and Society
See University of Kings College, Bachelor of Journalism program for general requirements
- SUST 1000.06
- SUST 1001.06
- SUST 2000.06 or SUST 2001.06
- two credits (12 credit hours) from approved list of ESS electives at the 3000 level or above

G. BInf Major in Environment, Sustainability and Society
See Faculty of Computer Science, Bachelor of Informatics program for general requirements.
- SUST 1000.06
- SUST 1001.06
- SUST 2000.06 or SUST 2001.06
- two credits (12 credit hours) from approved list of ESS electives at the 3000 level or above
- one credit (six credit hours) from approved list of ESS electives at the 2000 level or above

III. Minor in Environment, Sustainability and Society
- a minimum of three full credits (18 credit hours) and a maximum of four and one half credits at the 2000 level or above in BCD courses
- prerequisites: SUST 1000.06 and SUST 1001.06

IV. RBC Sustainability Leadership Certificate
The RBC Sustainability Leadership Certificate offers a powerful, creative, hands-on program consisting of three weekend modules, two personal action projects and a series of written reflections. The program is designed to cultivate students' skills and confidence to lead social and environmental change.

All students at Dalhousie University are eligible to apply for the program. Prerequisites are one of: SUST 1000, SUST 1001, AGRI 1000 or evidence of experience or course work in fields related to environmental and social sustainability. Applications may be made online at the College of Sustainability website in September and the program begins each year in October. For more information and to apply for the program please go to: http://www.dal.ca/faculty/sustainability/programs.html

V. Course Descriptions
SUST 1000.06: Introduction to Environment, Sustainability and Society 1.
An interdisciplinary issues-based approach to environment, sustainability and society drawing on themes from across the faculties, this course introduces students to the conceptual frameworks underlying our understanding of the environment and sustainability. Topics include energy, water, climate change, human population, economics, policy, food, urbanization and equity.

NOTE: One full credit in fall term.

FORMAT: Writing requirement. Team taught lecture/tutorial

SUST 1001.06: Introduction to Environment, Sustainability and Society 2.
Drawing on themes from across the disciplines, diverse conceptual frameworks and analytical methods underlying our understanding of the environment and sustainability are explored. Topics include energy, water, climate change, human population, economics, policy, food, urbanization and equity.

NOTE: One full credit in winter term.

FORMAT: Team taught lecture/tutorial

SUST 2000.06: Humanity in the Natural World: An Introduction to Problem Based Learning.
This course introduces students to problem-based learning. Students examine the development of environmental thought, ideas of sustainability, and conflicting positions on humanity’s place in the natural world. Issues are explored utilizing multiple perspectives drawn from the University. Students undertake group and individual research and develop critical analytical and quantitative skills.

NOTE: One full credit in winter term.

FORMAT: Team taught lecture/tutorial

SUST 2001.06: Humanity in the Natural World: An Introduction to Problem Based Learning.
This course examines the interface between human development and the environment at the global level using a problem-based approach. Various
SUST 4900.03: Advanced Topics in Environment Sustainability and Society.
This course addresses current interdisciplinary issues in sustainability with topics varying each semester. The course is taught by Dalhousie faculty, and/or visiting scholars.
PREREQUISITE: This class is restricted to students in the Environment, Sustainability and Society (ESS) program, or with permission from the Academic Advisor in the College of Sustainability.
RESTRICTION: Must have third year status or above

VI. List of Approved ESS Electives
Note: It is the student’s responsibility to check the course calendar for pre-requisites to these courses.

College of Sustainability
SUST 2000.06: Environment, Sustainability and Society Internship.
PREREQUISITE: SUST 2000.06 or SUST 2001.06. Cumulative GPA 3.0 or better. Must be in ESS program.
FORMA T: Internship
NOTE: Instructor approval required for registration. Visit: ess.dal.ca and click on "Community Engagement."

SUST 3502.03: The Campus as a Living Laboratory.
This course addresses current interdisciplinary issues in sustainability with topics varying each semester. The course is taught by Dalhousie faculty, and/or visiting scholars.
PREREQUISITE: This class is restricted to students in the Environment, Sustainability and Society (ESS) program, or with permission from the Academic Advisor in the College of Sustainability.
RESTRICTION: Must have third year status or above.

SUST 4000X/Y.06: Environment, Sustainability and Society Capstone.
Students work in multidisciplinary groups, with community partner organizations to identify real problems and develop meaningful solutions to address them. Groups work with advisors and experts to create detailed plans of action based on strong research and analysis, working in a studio environment.
FORMA T: Seminar studio/group research project

SUST 4800.03: Environment Sustainability and Society Independent Study.
This independent study course allows fourth-year students to study a topic in Environment, Sustainability and Society not covered in other courses, or in more depth. Students must first consult with a faculty member to arrange the topic of study. An outline of the Independent Study must be approved by the Associate Director Undergraduate of the College of Sustainability.
PREREQUISITE: This class is restricted to fourth-year students in the Environment, Sustainability and Society (ESS) program, or with permission from the Associate Director Undergraduate of the College of Sustainability.
RESTRICTION: Must have completed 90 credit hours, permission required

SUST 4900X/Y.06: Honours Thesis Project.
Independent research project carried out under the supervision of an approved faculty member or affiliated professional.
FORMA T: Thesis

SUST 4950.03: Advanced Topics in Environment Sustainability and Society.
SUST 4950.03: Advanced Topics in Environment Sustainability and Society.

College of Sustainability
SUST 2000.06: Environment, Sustainability and Society Internship.
PREREQUISITE: SUST 2000.06 and SUST 1001.06 or permission of instructor
FORMA T: Team taught/lecture/tutorial

SUST 3000.03: Global Approaches to Environmental Decision-Making.
Examination of the historic and current context for environmental decision-making in terms of public policy, global and domestic economy, political and business agenda-setting, science, technology and ethics. Alternative solutions that support the goal of long-term ecological integrity are examined. Students are encouraged to critically reflect on their 2nd year experience.
FORMA T: Seminar/studio/group research project
PREREQUISITE: SUST 2000.06 or SUST 2001.06
NOTE: Instructor approval required for registration. Visit: ess.dal.ca and click on "Community Engagement."

SUST 3502.03: The Campus as a Living Laboratory.
This course addresses current interdisciplinary issues in sustainability with topics varying each semester. The course is taught by Dalhousie faculty, and/or visiting scholars.
PREREQUISITE: This class is restricted to students in the Environment, Sustainability and Society (ESS) program, or with permission from the Academic Advisor in the College of Sustainability.
RESTRICTION: Must have third year status or above.

SUST 3950.03: Topics in Environment Sustainability and Society.
This course addresses current interdisciplinary issues in sustainability with topics varying each semester. The course is taught by Dalhousie faculty, and/or visiting scholars.
PREREQUISITE: This class is restricted to students in the Environment, Sustainability and Society (ESS) program, or with permission from the Academic Advisor in the College of Sustainability.
RESTRICTION: Must have third year status or above.

SUST 4000X/Y.06: Environment, Sustainability and Society Capstone.
Students work in multidisciplinary groups, with community partner organizations to identify real problems and develop meaningful solutions to address them. Groups work with advisors and experts to create detailed plans of action based on strong research and analysis, working in a studio environment.
FORMA T: Seminar studio/group research project

SUST 4800.03: Environment Sustainability and Society Independent Study.
This independent study course allows fourth-year students to study a topic in Environment, Sustainability and Society not covered in other courses, or in more depth. Students must first consult with a faculty member to arrange the topic of study. An outline of the Independent Study must be approved by the Associate Director Undergraduate of the College of Sustainability.
PREREQUISITE: This class is restricted to fourth-year students in the Environment, Sustainability and Society (ESS) program, or with permission from the Associate Director Undergraduate of the College of Sustainability.
RESTRICTION: Must have completed 90 credit hours, permission required

SUST 4900X/Y.06: Honours Thesis Project.
Independent research project carried out under the supervision of an approved faculty member or affiliated professional.
FORMA T: Thesis

SUST 4950.03: Advanced Topics in Environment Sustainability and Society.
SUST 4950.03: Advanced Topics in Environment Sustainability and Society.

College of Sustainability
SUST 2000.06: Environment, Sustainability and Society Internship.
PREREQUISITE: SUST 2000.06 and SUST 1001.06 or permission of instructor
FORMA T: Team taught/lecture/tutorial

SUST 3000.03: Global Approaches to Environmental Decision-Making.
Examination of the historic and current context for environmental decision-making in terms of public policy, global and domestic economy, political and business agenda-setting, science, technology and ethics. Alternative solutions that support the goal of long-term ecological integrity are examined. Students are encouraged to critically reflect on their 2nd year experience.
FORMA T: Seminar/studio/group research project
PREREQUISITE: SUST 2000.06 or SUST 2001.06
NOTE: Instructor approval required for registration. Visit: ess.dal.ca and click on "Community Engagement."

SUST 3502.03: The Campus as a Living Laboratory.
This course addresses current interdisciplinary issues in sustainability with topics varying each semester. The course is taught by Dalhousie faculty, and/or visiting scholars.
PREREQUISITE: This class is restricted to students in the Environment, Sustainability and Society (ESS) program, or with permission from the Academic Advisor in the College of Sustainability.
RESTRICTION: Must have third year status or above.

SUST 3950.03: Topics in Environment Sustainability and Society.
This course addresses current interdisciplinary issues in sustainability with topics varying each semester. The course is taught by Dalhousie faculty, and/or visiting scholars.
PREREQUISITE: This class is restricted to students in the Environment, Sustainability and Society (ESS) program, or with permission from the Academic Advisor in the College of Sustainability.
RESTRICTION: Must have third year status or above.

SUST 4000X/Y.06: Environment, Sustainability and Society Capstone.
Students work in multidisciplinary groups, with community partner organizations to identify real problems and develop meaningful solutions to address them. Groups work with advisors and experts to create detailed plans of action based on strong research and analysis, working in a studio environment.
FORMA T: Seminar studio/group research project

SUST 4800.03: Environment Sustainability and Society Independent Study.
This independent study course allows fourth-year students to study a topic in Environment, Sustainability and Society not covered in other courses, or in more depth. Students must first consult with a faculty member to arrange the topic of study. An outline of the Independent Study must be approved by the Associate Director Undergraduate of the College of Sustainability.
PREREQUISITE: This class is restricted to fourth-year students in the Environment, Sustainability and Society (ESS) program, or with permission from the Associate Director Undergraduate of the College of Sustainability.
RESTRICTION: Must have completed 90 credit hours, permission required

SUST 4900X/Y.06: Honours Thesis Project.
Independent research project carried out under the supervision of an approved faculty member or affiliated professional.
FORMA T: Thesis

SUST 4950.03: Advanced Topics in Environment Sustainability and Society.
SUST 4950.03: Advanced Topics in Environment Sustainability and Society.
### Undergraduate Courses

<table>
<thead>
<tr>
<th>Faculty of Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
</tr>
<tr>
<td>MGMT 4701.03: Resource/Environmental Problems-Solving I: The Community as a Living Laboratory</td>
</tr>
<tr>
<td>MGMT 4702.03: Resource/Environmental Problems-Solving 2: Sustainable Industries</td>
</tr>
<tr>
<td>MKMT 4301.03: Advanced Resource/Environmental Management</td>
</tr>
<tr>
<td>MGMT 4702.03: Advanced Resource/Environmental Management 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Faculty of Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
</tr>
<tr>
<td>BIOL 2269.03: Introductory Ecology</td>
</tr>
<tr>
<td>BIOL 3660.03: Environmental Ecology</td>
</tr>
<tr>
<td>BIOL 3841.03: Communities and Ecosystems</td>
</tr>
<tr>
<td>BIOL 3843.03: Resource Ecology</td>
</tr>
<tr>
<td>BIOL 3860.03: Conservation Biology</td>
</tr>
<tr>
<td>BIOL 3869.03: Population Ecology</td>
</tr>
<tr>
<td>BIOL 3223.03: Plants in the Human Landscape</td>
</tr>
<tr>
<td>BIOL 3600.03: Aquatic Ecology</td>
</tr>
<tr>
<td>BIOL 3601.03: Nature Conservation</td>
</tr>
<tr>
<td>BIOL 3610.03: Methods in Ecology</td>
</tr>
<tr>
<td>BIOL 3623.03: Field Survey of Terrestrial Biodiversity</td>
</tr>
<tr>
<td>BIOL 3638.03: Applied Coastal Ecology - Field intensive, lab and lecture</td>
</tr>
<tr>
<td>BIOL 3624.03: Urban Freshwater Systems</td>
</tr>
<tr>
<td>BIOL 3633.03: Spatial Information and GIS in Ecology</td>
</tr>
<tr>
<td>BIOL 3960.03: Species Invasions</td>
</tr>
<tr>
<td>BIOL 3800.03: Environmental Impact Assessment</td>
</tr>
<tr>
<td>BIOL 4903.03: Sustainability and Global Change</td>
</tr>
<tr>
<td>BIOL 4161.03: Political Ecology</td>
</tr>
<tr>
<td>BIOL 4535.03: Marine Impacts</td>
</tr>
<tr>
<td>BIOL 4536.03: Fisheries Oceanography</td>
</tr>
</tbody>
</table>

| Chemistry |
| CHEM 3005.03: Environmental Chemistry I |
| CHEM 4205.03: Environmental Chemistry II |

<table>
<thead>
<tr>
<th>Earth Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERTH 3340.03: Environmental Issues in Earth Sciences</td>
</tr>
<tr>
<td>ERTH 3341.03: Fundamentals of Hydrogeology</td>
</tr>
<tr>
<td>ERTH 3342.03: Practical Hydrogeology</td>
</tr>
<tr>
<td>ERTH 3343.03: Environmental Geology II</td>
</tr>
<tr>
<td>ERTH 3343.07: Geochronology of Aquatic Environments.</td>
</tr>
<tr>
<td>ERTH 3344.03: Geomorphology</td>
</tr>
<tr>
<td>ERTH 3345.01: Intro to Landscape Simulation</td>
</tr>
<tr>
<td>ERTH 3346.01: Geoscience Information Management</td>
</tr>
<tr>
<td>ERTH 4363.01: Global Biogeochemical Cycles</td>
</tr>
</tbody>
</table>

| Economics |
| ECON 2213.03: Emerging Giants: The Economic Rise of China and India |
| ECON 2216.03: Economics of Global Warming |
| ECON 2218.03: The Canadian Economy in the New Millennium: Economic Policy Debates |
| ECON 2334.01: Globalization and Economic Development: Current Debates |
| ECON 2550.03: The Science and Economics of Climate Change |
| ECON 3310.03: Economic Growth in Historical Perspective |
| ECON 3317.03: Poverty and Inequality |
| ECON 3332.03: Resource Economics |
| ECON 3333.03: Theories of Economic Development |
| ECON 3335.03: Environmental Economies |

| Environmental Science Program |
| ENVS 2100.03: Environmental Informatics |
| ENVS 2240.03: Environmental Issues in Earth Sciences |
| ENVS 2320.03: Introduction to Environmental Law |
| ENVS 2322.03: Plants in the Human Landscape |
| ENVS 2326.03: Economic Botany, Plants and Civilization |
| ENVS 2350.03: Contaminated Site Management |
| ENVS 3351.03: Enterprise Sustainability |
| ENVS 3350.03: Environment and Human Health |
| ENVS 3360.03: Environmental Problem Solving I |
| ENVS 3362.03: Environmental Problem Solving II: The Campus as a Living Laboratory |

### Other Engineering Courses

<table>
<thead>
<tr>
<th>Faculty of Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Engineering</td>
</tr>
<tr>
<td>ENVE 3500.03: ISES 3500.03: Fundamentals of Environmental Engineering</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Faculty of Health Professions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and Human Performance</td>
</tr>
<tr>
<td>RAHP 3000.03: Community Development</td>
</tr>
</tbody>
</table>

### History

<table>
<thead>
<tr>
<th>History</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 3210.03: Canadian Cultural Landscapes</td>
</tr>
<tr>
<td>HIST 3290.01: History of the Canadian West</td>
</tr>
<tr>
<td>HIST 3370.03: North American Landscapes</td>
</tr>
<tr>
<td>HIST 3515.03: Food for thought: History and the Culinary Cultures of the Islamic World</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>History of Science and Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSTC 2209.01: Bio-Politics: Human Nature in Contemporary Thought</td>
</tr>
<tr>
<td>HSTC 3115.03: Nature and History</td>
</tr>
<tr>
<td>HSTC 3290.01: Science and Religion: Historical Prespectives</td>
</tr>
<tr>
<td>HSTC 3292.01: Thethropos: Global Perspectives in Science and Philosophy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>International Development Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTD 3012.03: Sustainability, Development and Economy</td>
</tr>
<tr>
<td>INTD 3014.03: Environment and Development</td>
</tr>
<tr>
<td>INTD 3094.03: Sustainable Development in Cuba</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Italian Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 2200.03: Modern Italian Culture</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Philosophy</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 2101.03: Ethics in the World of Business</td>
</tr>
<tr>
<td>PHIL 2253.03: Justice in Global Perspective</td>
</tr>
<tr>
<td>PHIL 2460.03: Environmental Ethics</td>
</tr>
<tr>
<td>PHIL 2465.03: Technology and the Environment</td>
</tr>
<tr>
<td>PHIL 2720.03: The Good Life: Well-Being, Meaning and Happiness</td>
</tr>
<tr>
<td>PHIL 3476.03: Liberalism and Global Justice</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Political Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 3581.01: Politics of the Environment</td>
</tr>
<tr>
<td>POLI 3587.01: International Political Economy</td>
</tr>
<tr>
<td>POLI 4093.03: Politics of the Sea I</td>
</tr>
<tr>
<td>POLI 4438.03: Politics of Climate Change</td>
</tr>
<tr>
<td>POLI 4990.03: Politics of the Sea II</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Religious Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELS 2025.03: Nature, the Human, Community, and the Divine in the Pre-Modern West</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sociology and Social Anthropology</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOSA 2101.03: Environment and Culture</td>
</tr>
<tr>
<td>SOSA 2102.01: Political Ecology</td>
</tr>
<tr>
<td>SOSA 2111.01: Is there an Atlantic Canada?</td>
</tr>
<tr>
<td>SOSA 2141.03: Good Jobs, Bad Jobs</td>
</tr>
<tr>
<td>SOSA 2401.03/06: Food and Eating Across Cultures</td>
</tr>
<tr>
<td>SOSA 2402.01: Food and Culture</td>
</tr>
<tr>
<td>SOSA 2463.01: Food Activism</td>
</tr>
<tr>
<td>SOSA 5095.01: Knowledge, Work and Culture in the Contemporary World</td>
</tr>
<tr>
<td>SOSA 5095.03: Does Industrial Society Have a Future?</td>
</tr>
<tr>
<td>SOSA 5096.03: Social Change and Development</td>
</tr>
<tr>
<td>SOSA 5195.03: Social Movements</td>
</tr>
<tr>
<td>SOSA 5200.03: Environmental Anthropology</td>
</tr>
<tr>
<td>SOSA 5211.03: Continuity and Change in Rural Societies</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Faculty of Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Engineering</td>
</tr>
<tr>
<td>ENVE 3000.03: ISES 3000.03: Fundamentals of Environmental Engineering</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Engineering Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVE 3412.03: Energy and the Environment</td>
</tr>
<tr>
<td>ENVE 3427.03: Waste Management</td>
</tr>
<tr>
<td>ENVE 4421.03: Biosocioecology and Biofeedback</td>
</tr>
<tr>
<td>ENVE 4051.03: Solar Energy Utilization</td>
</tr>
<tr>
<td>CIVL 3451.03: Water Quality and Treatment</td>
</tr>
<tr>
<td>MINE 4513.03: Mining and the Environment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Faculty of Health Professions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and Human Performance</td>
</tr>
<tr>
<td>RAHP 3000.03: Community Development</td>
</tr>
</tbody>
</table>
ENVS 3601.03: Global Biogeochemical Cycles
ENVS 3615.03: Methods in Ecology
ENVS 3624.03: Urban Freshwater Systems
ENVS 3633.03: Spatial Information and GIS in Ecology
ENVS 4001.03: Environmental Impact Assessment
ENVS 4002.03: The Science of Wetland Ecosystems
ENVS 4210.03: Environmental Law II: Natural Law and Unnatural Acts
ENVS 4220.03: International Environmental Law for Scientists

Geography
GEOG 2800.03: Climate Change
GEOG 3001.03: Landscape Ecology
GEOG 3005.03: Cities and the Environment
GEOG 3114.03: Environment and Development
GEOG 3210.03: Canadian Cultural Landscapes
GEOG 3770.03: North American Landscapes
GEOG 3400.03: Human Health and Sustainability
GEOG 3440.03: Geomorphology
GEOG 3500.03: Exploring Geographic Information Systems
GEOG 3633.03: Spatial Information and GIS in Ecology
GEOG 4410.03: Introduction to Landscape Simulation

Marine Biology
MARI 3063.03: Resource Ecology
MARI 3600.03: Aquaculture
MARI 4335.03: Environmental Impacts in Marine Ecosystems
MARI 4169.03: Fisheries Oceanography

Mathematics
MATH 3400.03: Classical Game Theory

Neuroscience
NESC 2160.03: Animal Behaviour

Oceanography
OCEA 2000.06: Oceanography
OCEA 2800.03: Climate Change
OCEA 3420.03: Geochemistry of Aquatic Environments
OCEA 4000.03: Ocean and Global Change
OCEA 4169.03: Fisheries Oceanography
OCEA 4135.03: Environmental Impacts in Marine Ecosystems

Physics and Atmospheric Science
PHVC 2310.03: Energy and the Environment
PHVC 2800.03: Climate Change
PHVC 2850.06: The Science and Economics of Climate Change

Psychology
PSYO 2080.03: Social Psychology
PSYO 2160.03: Animal Behaviour
PSYO 4090.03: Development of Social Behaviour (Seminar)
Faculty of Agriculture

Location: Dalhousie Agricultural Campus
PO Box 590
21 Cox Road
Truro, NS B2N 5E3
Telephone: (902) 893-6722
Fax: (902) 893-6722
Website: http://www.dal.ca/faculty/agriculture.html

Dean & Campus Principal
Gray, D. R., Upper Second Class Honours degree (University College of North Wales), PhD (Rhodes)
Telephone: (902) 893-6720

Associate Dean Academic (Acting)
Callow, C. D., BSc (Mount Allison), MSc (Dalhousie), PhD (East Anglia)

Associate Dean Research
TBA

I. Introduction

The Faculty of Agriculture was established in 1905 as the Nova Scotia Agricultural College and merged with Dalhousie University in 2012. Students in the Faculty of Agriculture study a range of undergraduate degree programs including animal science, agricultural business, agricultural economics, aquaculture, environmental landscape horticulture, environmental science, integrated environmental management, international food business, plant science and pre-veterinary medicine.

The Faculty offers diploma and technical programs in business management, engineering, managed landscapes, plant science and veterinary technology, as well as a variety of certificate programs.

Dalhousie’s beautiful Agricultural Campus, located just outside Truro in Bible Hill, Nova Scotia, is home to the Faculty of Agriculture as well as more than 950 students. The campus is well equipped with a range of student services, residences, food and athletic facilities, clubs and societies, all of which lead to a rich and diverse campus life.

II. Faculty

Professors Emeriti

Hamilton, P. Y., BSc (Agr) (McGill), PhD (McGill) - Professor Emeritus
Langille, W. M., BSc (Acadia), MSc (McGill) - Professor Emeritus
Robinson, A. R., BSc (Agr) MSc (McGill), PhD (McGill) - Professor Emeritus
Sanger, P. M., BSc (Melbourne), PHD (Dalhousie), MA (Victoria) - Professor Emeritus
Stinson, G. W., BSc (Agr), MSc, PhD (Guelph) - Professor Emeritus

Read, R., BSc (Agr) (Newcastle), PhD (Newcastle-Upon-Tyne) - Professor Emeritus

Professors

Abrams, R., BSc (Reading), MSc (Skirling), PhD (Oregon)
Anderson, D. M., BSc, MSc (Manitoba), PhD (Saskatchewan)
Asante, K. B., BSc (Agr), MSc, PhD (Guelph)
Assutue, T., BSc, MSc (Addis Ababa), PhD (Queen’s)
Bentel, B. F., BSc (Sask), PhD (Ottawa)
Burton, D. L., BSc (Dalhousie), MSc (Guelph), PhD (Alberta)
Caldwell, C. D., BSc (Mount Allison), MSc (Dalhousie), PhD (East Anglia)
Clark, J. S., BSc (Dalhousie), MSc (Saskatchewan), PhD (North Carolina)
Doucet, J., BSc (Bath), PhD (Kent)
Ford, A. H., BSc, MSc (Shimer), PhD (Alberta)
Fredericks, A. H., BSc (Saskatchewan), MSc (Guelph), PhD (Alberta)
Griffiths, K. A., BSc (Agr), MSc, PhD (Western)
Gray, A. B., BSc (Bishop’s), MSc, PhD (McGill)
Harper, T. H., BSc (Dalhousie), MSc (Guelph)
Harvey, B. W., BSc (McGill), MSc (Guelph)
Laufman, L. S., BSc (Dalhousie), MSc (Manitoba), PhD (Colorado)
MacLaren, L. A., BSc (Dalhousie), MSc (Victoria), PhD (Victoria)
Maleskey, D. J., BSc, MSc, PhD (UPEI)
Patterson, D. L., BSc (Alberta), MSc, PhD (Alberta)
Peric, D. C., BSc (Agr), MSc, PhD (Guelph)
Rousen, K. K., BSc, MSc, PhD (Dalhousie)
Sibley, P. J., BSc (Agr), MSc (Dalhousie), PhD (Wageningen)
Temesvari, I., BSc, MSc, PhD (Alberta)
Weng, C. T., BSc (Taiwan), PhD (Alberta)
Yak, L. B. (Agr), MSc (Aurora), MSc, PhD (Ohio State)

Associate Professors

Barnett, R. R., BSc, MSc, PhD (Western Ontario)
Cameron, D. A., BSc Hon (St. FX), MA (York), PhD (Lehigh)
Corsica, A., BSc (Agr), MSc (McGill), PhD (Manchester)
Dunlop, D. M., BSc (Agr) (NSAC), MSc (Alberta), PhD (Alberta)
Georgallas, A., BSc (Queen Elizabeth College), MSc (London), PhD (London)
Goodwin, C. D., BSc (Dalhousie), MSc (Guelph)
Grant, K. G., BA (Acadia), MA, PhD (Western)
Gray, A. B., BSc (Bishop’s), MSc, PhD (McGill)
Harvey, B. W., BSc (McGill), MSc (Guelph)
Laufman, L. S., BSc (Dalhousie), MSc (Manitoba), PhD (Colorado)
Maleskey, D. J., BSc, MSc, PhD (UPEI)
Patterson, D. L., BSc (Alberta), MSc, PhD (Alberta)
Peric, D. C., BSc (Agr), MSc, PhD (Guelph)
Rousen, K. K., BSc, MSc, PhD (Dalhousie)
Sibley, P. J., BSc (Agr), MSc (Dalhousie), PhD (Wageningen)
Temesvari, I., BSc, MSc, PhD (Alberta)
Weng, C. T., BSc (Taiwan), PhD (Alberta)
Yak, L. B. (Agr), MSc (Aurora), MSc, PhD (Ohio State)

Assistant Professors

Barnett, D. M. W., BSc (Newfoundland), PhD (Saskatchewan)
Bouchier, F., BSc, MSc (Maine), PhD (Alberta)
Caldwell, C. D., BSc (Mount Allison), MSc (Dalhousie), PhD (East Anglia)
Clark, J. S., BSc (Dalhousie), MSc (Saskatchewan), PhD (North Carolina)
Doucet, J., BSc (Bath), PhD (Kent)
Ford, A. H., BSc, MSc (Shimer), PhD (Alberta)
Fredericks, A. H., BSc (Saskatchewan), MSc (Guelph), PhD (Alberta)
Griffiths, K. A., BSc (Agr), MSc, PhD (Western)
Gray, A. B., BSc (Bishop’s), MSc, PhD (McGill)
Harper, T. H., BSc (Dalhousie), MSc (Guelph)
Laufman, L. S., BSc (Dalhousie), MSc (Manitoba), PhD (Colorado)
MacLaren, L. A., BSc (Dalhousie), MSc (Victoria), PhD (Victoria)
Maleskey, D. J., BSc, MSc, PhD (UPEI)
Patterson, D. L., BSc (Alberta), MSc, PhD (Alberta)
Peric, D. C., BSc (Agr), MSc, PhD (Guelph)
Rousen, K. K., BSc, MSc, PhD (Dalhousie)
Sibley, P. J., BSc (Agr), MSc (Dalhousie), PhD (Wageningen)
Temesvari, I., BSc, MSc, PhD (Alberta)
Weng, C. T., BSc (Taiwan), PhD (Alberta)
Yak, L. B. (Agr), MSc (Aurora), MSc, PhD (Ohio State)

Website: http://www.dal.ca/faculty/agriculture.html

Toll-Free: 1-888-700-6722
Telephone: (902) 893-6722

Location: Dalhousie Agricultural Campus
Faculty of Agriculture
Website: http://www.dal.ca/faculty/agriculture.html
Adjunct, Research, Honorary Research Professors and Honorary Research Associates

Al-Mughrabi, I. K. BSc (Jordan), PhD (Dalhousie) - Adjunct
Anuar, N. T. BSc (Ghana), MSc (Dalhousie), PhD (Ghana, Copenhagen) - Adjunct
Batawm, G., BSc (Laval), MSc (Guelph), PhD (Paris-Sud) - Adjunct
Brancher, C., BSc (Toulouse), MSc (Aligarh), PhD (Toulouse) - Adjunct
Bernas, R. L., BSc, MSc, PhD (Montreal) - Adjunct
Bhattacharya, B., BSc, MSc (Laval), PhD (North Carolina) - Adjunct
Boyle, D., BSc (Queen’s), MSc (Dalhousie), PhD (Rome) - Adjunct
Case, J. D., BSc, MSc (Dalhousie), PhD (Oregon) - Adjunct
Christie, B. J., BSc (Quebec), MSc (Toronto), PhD (Liver) - Adjunct
Colman, W. K., BSc, PhD (Western Ontario) - Honorary Research Associate
Dandurand, R. W., BSc (McGill), MSc (Michigan State), PhD (Penn State) - Adjunct
Dr. Jian, B., BSc (Beihai College), MSc (Kanata), PhD (Wisconsin) - Adjunct
Dulski, D., BSc (Agr) (Guelph), MSc, PhD (Memphis) - Adjunct
Drivo, A., BSc (Belgrade), MSc, PhD (Edinburgh) - Adjunct
Dzuznijold, J., BSc, MSc (Agr), PhD (NSAC) - Adjunct
Esi-Mensah, A., BSc, MSc, PhD (Lagos) - Adjunct
Embree, C., BSc (Transcona), MSc (British Columbia) - Adjunct
Funk, K. C., BSc (Agr) (Guelph), PhD (Saskatchewan) - Adjunct
Garbar, D. J., BSc (Lisbon) - Adjunct
Gaud, S. O., BSc (NSAC), MSc (Dalhousie), PhD (Guelph) - Adjunct
Hambrecht, J. M., BSc (Dalhousie), MSc (London, UK), PhD (Simon Fraser) - Adjunct
Hillier, N. K., BSc, PhD (McGill) - Adjunct
Ju, H. Y., BSc (Agricultural Sciences), MSc, PhD (Guelph) - Adjunct
Kamp, R., BSc, PhD (Guelph) - Adjunct
Lali, S., BSc (Allahabad), MSc, PhD (Guelph) - Adjunct
Macdonald, J., BSc (Agri) (McMaster), MSc (McGill), PhD (Concordia) - Adjunct
MacLaren, K. B., BEd (British Columbia), MSc, PhD (Oregon) - Adjunct
Mais, L., BSc (Guelph), PhD (Alberta) - Adjunct
Makkar, M., BSc, MSc, PhD (NSAC) - Adjunct
Margarie, A., BSc (UN), MSc (Guelph) - Honorary Research Associate
Marty, G. R., BSc (Agr), PhD (NSAC), MSc (McGill), MBA (Executive) - Saint Mary’s, PhD (Dalhousie) - Adjunct
Narain, J. P., BSc (Mount Allison), MSc (Dalhousie), PhD (Laval) - Adjunct
Papadopoulos, J., BSc, MSc (PSU), PhD (Paris) - Adjunct
Peters, R. R., BSc (Agr), BEd (Western), MSc, PhD (Guelph) - Adjunct
Pirk, D., BSc (St. FX), MSc (British Columbia) - Adjunct
Platt, H. W., BSc (Mount Allison), PhD (Saskatchewan) - Adjunct
Raghuram, J., BSc (Agri) (Saskatchewan), MSc (Akron), PhD (Saskatchewan) - Adjunct
Rose, M. L., BSc (Shrewsbury), MSc (Boston), PhD (Victoria) - Adjunct
Robinson, A. R., BSc (Agri), MSc, PhD (McGill) - Adjunct
Robinson, M. C., BSc (Acadia), MSc, PhD (Simon Fraser) - Adjunct
Roxby, V., BSc (UNPEI), MSc (Mount Allison) - Adjunct
Russe, N. W., BSc, PhD (McGill) - Adjunct
Shama, A. W., BSc, MSc, PhD (Georgia) - Adjunct
Sladkevicius, K., BSc, MSc, PhD (NSAC) - Adjunct
Sivakumar, E., BSc, BBA (saskatchewan), MSc (Massachusetts), PhD (Saskatchewan) - Adjunct
Small, J. G., BSc (Agr) (Guelph), MSc (Mount Allison), PhD (British Columbia) - Adjunct
Strinati, G. W., BSc (Agri), MSc, PhD (Guelph) - Adjunct
Sturz, A. V., BSc (Newcastle-upon-Tyne), PhD (Manchester) - Adjunct
Tai, C., BSc, MSc (Taiwan), PhD (Saskatchewan) - Adjunct
Thomas, W. G., BSc (British Columbia), MSc (Dalhousie) - Adjunct
Wang, Y., BSc, MSc (Gansu), PhD (Alberta) - Adjunct
Wither, R., BSc (Agri) (Guelph) - Adjunct
Wright, J. M., BSc (Mount Allison), PhD (Memorial) - Honorary Research Associate

III. Degree Requirements

A. Bachelor of Agriculture - International Food Business *

* This is a dual degree awarded with a Bachelor of Administration (Honours) from CAH Vilentum University in the Netherlands

Vilentum University in The Netherlands and Dalhousie University have partnered to offer a new four-year, dual-degree program. Graduates will be awarded a Bachelor of Agriculture in International Food Business from Dalhousie University and a Bachelor of Administration in International Food Business (Honours) from CAH Vilentum.

This exciting new dual-degree program offers a four-year international and two work terms—one in North America and one in Europe. In year one, North American students will study at Dalhousie University, and European students will study at CAH. Year two is offered in The Netherlands when both groups of students will study together. This continues in year three when both groups of students study on Dalhousie’s Agricultural Campus in Truro, NS. Students complete year four at their home university.

This four-year degree emphasizes its international focus by beginning with a one-week orientation in Iceland, where European and North American students get to know one another while exploring the Icelandic food industry. This unique program will appeal to students who enjoy studying independently, have an interest in business and are keen to explore the world.

Program Design and Delivery

The Bachelor of Agriculture in International Food Business is a modularized, competency-based program of study. The academic courses are integrated into a series of 10 modules throughout the first three years of the program. The module titles are listed below

Year 1 Theme: International Business Essentials

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 1.</td>
<td>Module 2.</td>
</tr>
<tr>
<td>Acquiring Knowledge of International Food Systems</td>
<td>Analyzing and Realizing Financial Performance</td>
</tr>
</tbody>
</table>

Year 2 Theme: Innovation and Marketing

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation and Entrepreneurship in Food Business</td>
<td>Developing External Communication Strategies</td>
</tr>
</tbody>
</table>

Year 3 Theme: Leadership, Finance and Business Planning

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Research</td>
<td>European Placement</td>
</tr>
</tbody>
</table>

Students who complete all modules plus year 4 will receive credit in the following courses to meet the core requirements of the program:

- ECOA 1002: Introduction to Economic Reasoning
- EGSA 1801: Business Writing
- FOOD 1000: Food Safety and Quality Assurance
- INFB 1000: International Food Policy and Environment
- INFB 1001: International Food Business Project I

50 Faculty of Agriculture
MGTA 4003: North American Placement II
MGTA 4002: North American Placement I
Semester VIII
Elective
MGTA 4001: Advanced Entrepreneurship
MGTA 3007: Quality Management
Semester VII
MGTA 3000: Management Accounting
MGTA 3003: European Placement I
MGTA 3004: European Placement II
MGTA 3005: New Product Development
MGTA 3006: Retail Management
MGTA 3007: Quality Management
MGTA 3008: Intermediate Marketing Research
MGTA 4001: Advanced Entrepreneurship
MGTA 4002: North American Placement I
MGTA 4003: North American Placement II
INTH 1002: Business Math
MGTA 4004: Research Methods for Economics and Business
RESM 4005: Project-Seminar for Economics and Business
nine electives (including two, four course specializations)

Year 1 Semester I
ECOA 1002: Introduction to Economic Reasoning
ECLA 1003: Business Writing
INFB 1000: International Food Policy and Environment
INFB 1001: International Food Business-Project I
MGTA 1001: Introduction to International Business

Semester II
INFB 1002: International Food Business-Project II
FOOD 1000: Food Safety and Quality Assurance
MGTA 1002: Food Supply Chain Management
MGTA 1003: International Business Communications
MGTA 2006: Advertising and Promotion

Year 2 Semester III
MGTA 2002: Marketing
MGTA 2010: Innovation Management
MGTA 3005: New Product Development
MGTA 3006: Retail Management
MTHA 1002: Business Math

Semester IV
INFB 1000: Introductory Calculus I
INFB 1001: Introductory Calculus II
MTHA 1000: Introductory Calculus III
MTHA 1001: Introductory Calculus IV
ECOA 1000: Principles of Microeconomics
CHMA 1000: General Chemistry I
CHMA 1001: General Chemistry II
BIOA 1000: Biological Sciences
AGRI 1000: Agricultural Ecosystems

Year 4 Semester IX
RESM 4004: Research Methods for Economics and Business
Elective (First Specialization)
Elective (First Specialization)
Elective (Second Specialization)
Elective (Second Specialization)

Semester X
RESM 4005: Project-Seminar for Economics and Business
Elective (First Specialization)
Elective (First Specialization)
Elective (Second Specialization)
Elective (Second Specialization)
In year four, students must take two, four course specializations. The following is a list of Specializations students can choose in consultation with the International Food Business Coordinator:
• Agrology Studies
• Animal Studies Development Studies
• Environmental Studies
• Economic Studies
• Horticultural Studies
• Management Studies
• Organic Agricultural Studies
• Quantitative Methods Studies
• other

B. Bachelor of Science (Agriculture)
Dalhousie offers a four-year program leading to a degree in Agricultural Science. Students in the Agricultural Sciences who successfully complete the prescribed courses with a cumulative GPA of at least 2.0, and who are in good standing, will be granted the degree of Bachelor of Science in Agriculture, BSc (Agr). Graduates of this program meet the formal educational requirements for Professional Agrologists in the provincial Institutes of Agrologists of the Atlantic Provinces.

Normally, students select a major during their first year and continue in that field of study until they graduate.
• 120 Credit Hours
• 56 credit hours of approved agricultural courses from the list below
• 36 credit hours of approved Languages and Humanities/Social Sciences electives from the list, of which three credit hours must be at the 3000 level or above
• 18 credit hours at the 3000 level or above
• Specific Major Requirements as follows

Major Subjects

Double Major
Students wishing to complete a double major must satisfy all of the degree requirements for the BSc (Agr) and the program specific requirements of each major with the exception of the research methods course. One set of research methods courses should be completed and the research project should cover both majors. Students must complete a minimum of 24 credit hours in the second major that are not included in the first major. A degree with a second major may take longer to complete than a single degree major due to scheduling challenges.

Required Courses for All Majors
1800 Level
AGRE 1000: Agricultural Ecosystems
BIOA 1002: Biology I
BIOA 1003: Biology II
CHMA 1000: General Chemistry I
CHMA 1001: General Chemistry II
ECOA 1000: Principles of Microeconomics
MTHA 1000: Introductory Calculus I
MTHA 1001: Introductory Calculus II

Faculty of Agriculture
One of:
EGLA 1000: Composition
EGLA 1001: The Novel or
EGLA 1002: Nature in English & American Literature

2000 Level
STAA 2000: Introduction to Statistics

4000 Level
RESM 4XXX: Project Seminar I
RESM 4XXX: Project Seminar II

Approved Agricultural Courses
• AGRI 1000, 1001, 2000, 3001, 4000
• FOOD 3000, 3001, 4000
• GENE 4000
• IAGR 2003, 3000, 3001, 4000
• MGTA 2003, 4001
• MCRA 3000, 4000
• NUTR 3000, 3001, 3002
• RESM 4000, 4001, 4002, 4003, 4004, 4005, 4006, 4007, 4008, 4009, 4010, 4011
• SOIL 2000, 3000, 3001, 4001

Approved Languages and Humanities/Social Sciences Electives
Courses in the following subject areas, and the additional specific courses listed below, must the Languages and Humanities/Social Sciences elective requirements:
• Languages and Humanities: EGLA (English), ARTS (Art), HISA (History), FRNA (French), SPNA (Spanish), PHLA (Philosophy)
• Social Sciences: ECOA (Economics)*, EXTE (Extension Education), CMMT (Communications), GEOA (Geography), HISA (History), PSYC (Psychology), POLS (Political Science), RURS (Rural Studies), SOCI (Sociology)
• AGRI 3001: Issues in Agricultural Health and Safety
• HORT 3008: Horticultural Therapy
• IAGR 2002: International Rural Development
• IAGR 2003: Food Security and Rural Development in Cuba
• SPEC 4009: Special Topics in Rural Studies
*Student taking majors or minors in Agricultural Business or Agricultural Economics cannot use ECOA courses for completion of their Languages and Humanities/Social Sciences Electives.

1. BSc (Agri) - Agricultural Business
Required Courses & Suggested Schedule
Year II: Semester III
ECOA 2000: Intermediate Microeconomics
ECOA 3000: Mathematical Economics
MGTA 2002: Marketing
MGTA 2004: Financial Accounting
three credit hours of electives

Year II: Semester IV
ECOA 1001: Principles of Macroeconomics
ECOA 2003: Agricultural Future and Options
STAA 2000: Introduction to Statistics
six credit hours of electives

Year III: Semester V
ECOA 3006: Statistics for Economics & Business
MGTA 2001: Financial Management
MGTA 3000: Management Accounting
six credit hours of electives

Year III: Semester VI
ECOA 3002: Agricultural & Food Policy
ECOA 3003: Mathematical Programming
MGTA 4001: Advanced Entrepreneurship
six credit hours of electives

Year IV: Semester VII
RESM 4005: Project-Seminar for Economics & Business
12 credit hours of electives
Electives must include:
• six credit hours of Languages and Humanities/Social Science courses which cannot be from the ECOA destination and three credit hours of these must be at the 3000 level or above.
• 12 credit hours of approved Agricultural Courses.

2. BSc (Agri) - Agricultural Economics
Required Courses & Suggested Schedule
Year II: Semester III
ECOA 2000: Intermediate Microeconomics
ECOA 3000: Mathematical Economics
MGTA 2002: Marketing
MGTA 2004: Financial Accounting
six credit hours of electives

Year II: Semester IV
ECOA 1001: Principles of Macroeconomics
ECOA 2001: Intermediate Macroeconomics
ECOA 3006: Statistics for Economics and Business
ECOA 4004: Trade
MGTA 2001: Financial Management
three credit hours of electives

Year III: Semester V
ECOA 3002: Agricultural & Food Policy
ECOA 3003: Mathematical Programming
ECOA 3004: Agricultural Markets & Prices
six credit hours of electives

Year III: Semester VI
ECOA 3002: Agricultural & Food Policy
MGTA 3000: Management Accounting
nine credit hours of electives

Year IV: Semester VII
RESM 4005: Project-Seminar for Economics & Business
12 credit hours of electives

Year IV: Semester VIII
RESM 4004: Research Methods for Economics & Business
12 credit hours of electives
Electives must include:
• six credit hours of Languages and Humanities/Social Science courses which cannot be from the ECOA destination and three credit hours of these must be at the 3000 level or above.
• three credit hours of approved Agricultural Courses.

Electives must include:
• six credit hours of Languages and Humanities/Social Science courses which cannot be from the ECOA destination and three credit hours of these must be at the 3000 level or above.
• 12 credit hours of approved Agricultural Courses.

Electives must include:
• six credit hours of Languages and Humanities/Social Science courses which cannot be from the ECOA destination and three credit hours of these must be at the 3000 level or above.
• three credit hours of approved Agricultural Courses.
3. BSc (Agri) - Animal Science

Required Courses & Suggested Schedule

Year II: Semester III
ANSC 2005: Animal Agriculture
CHMA 3000: Organic Chemistry I
GENE 3000: Genetics
PHYS* or STAA 3000*: Introduction to Statistics
three credit hours of electives

Year II: Semester IV
BIOA 2006: Mammalian Physiology
CHMA 3001: Biochemistry
PHYS* or STAA 3000*: Introduction to Statistics
six credit hours of electives

Year III: Semester V
BIOA 3008: Growth, Reproduction and Lactation
NUTR 3000: Animal Nutrition
nine credit hours of electives

Year III: Semester VI
ANSC 3000: Animal Breeding
NUTR 3001: Applied Animal Nutrition
nine credit hours of electives

Year IV: Semester VII
RESM 4002: Animal Science Project-Seminar I
12 credit hours of electives

Year IV: Semester VIII
RESM 4003: Animal Science Project-Seminar II
12 credit hours of electives

Electives must include:
- six credit hours of Languages and Humanities/Social Science courses of which three credit hours must be at the 3000 level or above.
- nine credit hours of approved Agricultural Courses.
- 12 credit hours of approved Animal Science electives at the 3000 or 4000 level from the following list:
  - ANSC, 3001, 3002, 3003, 3004, 3005, 4000, 4003, 4004, 4005, 4006, 4007, 4008, 4009
  - AQUA 3000, 4000, 4001
  - BIOA 3004, 3005, 3006, 4000, 4001, 4003, 4004
  - GENE 3001, 4000
  - NUTR 3002, 4000
  - SPEC 4000

Year III: Semester VI
ANSC 3000: Animal Breeding
AQUA 3000: Fish Health
APSC 3013: Aquacultural Systems Technology
NUTR 3002: Fish Nutrition** or elective (three credit hours)
three credit hours of electives

Year IV: Semester VII
AQUA 4000: Shellfish Production***
RESM 4010: Aquaculture Project-Seminar I
nine credit hours of electives

Year IV: Semester VIII
AQUA 4001: Shellfish Production***
RESM 4011: Aquaculture Project-Seminar II
nine credit hours of electives

* Students must complete either PHYS 1000 or PHYS 1002. If PHYS 1000/1002 is done in semester I, then STAA 3000 will be done in semester II. If STAA is done in semester I, then PHYS 1000 or PHYS 1002 will be done in semester II.

** Students must complete either NUTR 3000 or NUTR 3002.

*** Students must complete either MGT 1000 or MGT 2002 or MGT 2004

4. BSc (Agri) - Aquaculture

Required Courses & Suggested Schedule

Year II: Semester III
AQUA 2000: Introduction to Aquaculture
CHMA 3000: Organic Chemistry I
GENE 2000: Genetics
PHYS* or STAA 2000: Introduction to Statistics
three credit hours of electives

Year II: Semester IV
CHMA 3001: Biochemistry
APSC 3004: Aquacultural Environment
MCRA 2000: Microbiology
PHYS*: Physics
STAA 2000*: Introduction to Statistics
three credit hours of electives

Year III: Semester V
BIOA 3005: Physiology of Aquatic Animals
BIOA 3006: Aquatic Ecology
NUTR 3000: Animal Nutrition** or elective (three credit hours)
six credit hours of electives

Year III: Semester VI
AQUA 3000: Fish Health
APSC 3013: Aquacultural Systems Technology
NUTR 3002: Fish Nutrition** or elective (three credit hours)
three credit hours of electives

Year IV: Semester VII
AQUA 4000: Shellfish Production***
RESM 4010: Aquaculture Project-Seminar I
nine credit hours of electives

Year IV: Semester VIII
AQUA 4001: Shellfish Production***
RESM 4011: Aquaculture Project-Seminar II
nine credit hours of electives

* Students must complete the combination of PHYS 1000 or PHYS 1002 and STAA 2000 in year II. If PHYS 1000/1002 is done in semester I, then STAA 3000 will be done in semester II. If STAA is done in semester I, then PHYS 1000 or PHYS 1002 will be done in semester II.

** Students must complete either NUTR 3000 or NUTR 3002.

*** Students must complete either MGT 1000 or MGT 2002 or MGT 2004

5. BSc (Agri) - Environmental Sciences

Required Courses & Suggested Schedule

Year II: Semester III
CHMA 3000: Organic Chemistry I
ENVS 2000: Environmental Studies I
SOIL 2000: Introduction to Soil Science
STAA 2000: Introduction to Statistics
three credit hours of electives

Year II: Semester IV
CHMA 3001: Biochemistry or CHMA 3009: Environmental Chemistry
ENVS 2001: Environmental Studies II
MCRA 2000: Microbiology
STAA 3000: Introduction to Planned Studies: Surveys & Experiments
three credit hours of electives

Year III: Semester V
BIOA 3001: Ecology
CHMA 3010: Bio-Analytical Chemistry or
ENVS 4000: Geographic Information Systems (GIS)
ENVS 3001: Environmental Sampling & Analysis
PHYS 1000: Physics for the Life Sciences** or
PHYS 1002: Physics I or three credit hours of electives
three credit hours of electives

Year III: Semester VI
ENVS 3002: Waste Management & Site Remediation
PHYS 1000: Physics for the Life Sciences I** or
PHYS 1002: Physics I or three credit hours of electives
nine credit hours of electives

Year III: Semester VII
ENVS 3004: Principles of Pest Management
ENVS 4000: Air, Climate and Climate Change
HORT 3000: Environmental Processes & Natural Landscape Functions
RESM 4006: Environmental Sciences Project Seminar I
three credit hours of electives

Year IV: Semester VIII
ENVS 3000: Environmental Impact Assessment
RESM 4007: Environmental Sciences Project-Seminar II
nine credit hours of electives
Physics - Students must complete either PHYS 1000 or STAA 2000 but not both for credit.

Within the Environmental Sciences major, students may select any one of the following areas of specialization:

• Environmental Biology
• Environmental Chemistry
• Environmental Soil Science
• Pest Management
• Water Management

Interested students are to consult with the academic advisor.

Electives must include:

• six credit hours of Languages and Humanities/Social Science courses of which three credit hours must be at the 3000 level or above.
• Students who complete CHEM 3010 must include six credit hours of approved Agriculture electives. Students who complete ENV A 3005 must include three credit hours of approved Agriculture electives.

6. BSc (Agr) - Integrated Environmental Management

Required Courses & Suggested Schedule

Year II: Semester III
APSC 2002: Bioresource Systems Analysis
APSC 2011: Technology for Precision Agriculture
PHYS 1000: Physics for Life Sciences I* or STAA 2000: Introduction to Statistics* three credit hours of electives

Year II: Semester IV
APSC 1003: Practices & Mechanics of Materials
ENGN 2014: Bioresource Processing
PHYS 1000: Physics for Life Sciences I* or STAA 2000: Introduction to Statistics* three credit hours of electives

Year III: Semester V
APSC 2013: Machinery & Building Technology
APSC 3020: Energy Production & Utilization
ENV A 3021: Ecohydrology six credit hours of electives

Year III: Semester VI
ENGN 3016: Engineering Economy
ENV A 3002: Waste Management & Site Remediation
STAA 2000: Introduction to Statistics or three credit hours of electives

Year IV: Semester VII
APSC 4006: Wastewater Management
RESM 4009: Plant Science Project Seminar II nine credit hours of electives

Year IV: Semester VIII
RESM 4001: Bio-Environmental Systems Management Project Seminar I nine credit hours of electives

Electives must include:

• six credit hours of Languages and Humanities/Social Science courses of which three credit hours must be at the 3000 level or above.

7. BSc (Agr) - Plant Science

Required Courses & Suggested Schedule

Year II: Semester III
BIOA 2000: Cell Biology or BIOA 2001: Cell Biology Laboratory
BIOA 2002: Plant Genetics
CHMA 2000: Organic Chemistry I
GENE 2000: Genetics
SOIL 2005: Introduction to Soil Science

Year II: Semester IV
BIOA 2002: Plant Physiology
BIOA 2004: Structural Botany
CHMA 3001: Biochemistry
MCRA 2000: Microbiology three credit hours of electives

Year III: Semester V
BIOA 2000: General Entomology
BIOA 3002: Weed Science
STAA 2000: Introduction to Statistics or three credit hours of electives

Year III: Semester VI
BIOA 2005: Principles of Plant Pathology
RESM 4010: Plant Science Project Seminar I or SOIL 3005: Soil Fertility & Nutrient Management or three credit hours of electives
STAA 2000: Introduction to Statistics or three credit hours of electives

Year IV: Semester VII
PLSC 4002: Plant Ecophysiology
RESM 4009: Plant Science Project Seminar II nine credit hours of electives

Year IV: Semester VIII
SOIL 3005: Soil Fertility & Nutrient Management or three credit hours of electives
12 credit hours of electives

Electives must include:

• six credit hours of Languages and Humanities/Social Science courses of which three credit hours must be at the 3000 level or above.

C. Diploma in Engineering

The first two years of the Bachelor of Engineering program may be completed in the Faculty of Agriculture. After the first two year students will receive the Diploma in Engineering and may progress into the upper years of Engineering in the Faculty of Engineering.

Required Courses & Suggested Schedule

Year 1 Semester I
BIOA 1030: Biology for Engineers
CHMA 1000: General Chemistry I
ENGN 1001: Engineering Design I
MTHA 1001: Introduction to Calculus I
PHYS 1002: Physics I

Year 1 Semester II
CHMA 1001: General Chemistry II
CSCA 1000: Computer Science
ENGN 1006: Engineering II
MTHA 1001: Introduction to Calculus II
MTHA 3000: Applied Linear Algebra

PHYS 1003: Physics II
Faculty of Agriculture

E. Minors

1. Minor in Agricultural Business

18 credit hours to include:

• MGMT 2002: Marketing
• MGMT 2003: Financial Management

12 credit hours of additional courses approved by the Business & Social Sciences Department Head

Students may count a maximum of nine credit hours of MSTA or ECOA courses from their major towards their minor (ECOA 1000 excluded). Interested students need the approval of the department head and should consult the department.

2. Minor in Agricultural Chemistry

15 credit hours of chemistry courses including:

• CHMA 2000: Organic Chemistry I
• CHMA 3003: Advanced Integrated Chemistry Laboratory I
Nine credit hours of courses approved by the Department of Environmental Sciences.
Students may not select courses which are required for their major.

3. Minor in Agricultural Economics
18 credit hours chosen from the following, in consultation with the Agricultural Economics advisor:
- ECOA 1001: Principles of Microeconomics
- ECOA 2003: Principles of Macroeconomics
- ECOA 3000: Microeconomics

Students may not select courses which are required for their major. Students should consult the Department for selection of appropriate courses.

4. Minor in Animal Science
18 credit hours of courses approved by the Animal Science advisor.

Students may count a maximum of nine credit hours of MGTA or ECOA courses from their major towards their minor (ECOA 1000 excluded). Interested students need the approval of the department head and should consult the department for additional information.

5. Minor in Animal Welfare
18 credit hours including:
- ANSC 3002: Domestic Animal Behavior
- ANSC 3005: Animal Welfare
- ANSC 4009: Directed Study in Animal Sciences (can be used for the minor if the topic is within the area of animal welfare science)
- BIOA 3004: Environmental Physiology
- BIOA 4004: Animal Adaptation & Stress
- PHLA 3000: Environmental & Agricultural Ethics
- RESM 4XXX: Project Seminar I & II (can together count as one course towards the minor if the research project is conducted in the field of animal welfare science)

Students may select up to nine credit hours to count towards the minor as well as the major.

6. Minor in Aquaculture
18 credit hours chosen from the following, in consultation with the Aquaculture advisor:
- AQUA 2000: Introduction to Aquaculture
- AQUA 3000: Fish Health
- AQUA 4000: Fish Production
- AQUA 4001: Shellfish Production
- BIOA 3005: Physiology of Aquatic Animals
- BIOA 5006: Aquatic Ecology
- APSC 2013: Aquacultural Systems Technology
- NUTR 3002: Fish Nutrition

Students may select up to nine credit hours to count towards the minor as well as the major.

7. Minor in Environmental Sciences
15 credit hours including:
- ENV A 2000: Environmental Studies I
- ENV A 2001: Environmental Studies II

Nine credit hours of courses approved by the Department of Environmental Sciences.

Students may not select courses which are required for their major.

8. Minor in Food Science & Technology
15 credit hours including:
- CHMA 2003: Food Chemistry I
- FOOD 3000: Food Quality Assurance
- MTHA 2000: Microbiology

Three credit hours chosen from the following:
- ANSC 3003: Eggs & Dairy Products
- ANSC 4004: Meat Science
- CHMA 3007: Food Chemistry II** or
- CHMA 3008: Intermediate Food Chemistry**
- CHMA 4001: Directed Studies in Chemistry
- FOOD 3001: Functional Foods & Nutraceuticals
- FOOD 4000: Directed Studies in Food & Bioprocess Science

* Students may not select courses which are required for their major. However, if MCRE 2000 is required in a student’s major, an additional elective must be selected from the list above.
** Either CHMA 3007 or CHMA 3008, but not both, can count towards the minor.

9. Minor in Genetics & Molecular Biology
18 credit hours including:
- BIOA 2000: Cell Biology or
- BIOA 2001: Cell Biology Laboratory
- GENE 3000: Genetics
- MTHA 3000: Introduction to Molecular Genetics

Nine credit hours selected from the following:
- ANSC 3000: Animal Breeding
- GENE 1001: Population & Quantitative Genetics
- GENE 4000: Molecular Applications to Animal Production
- GENE 4003: Biotechnology
- GENE 4004: Lab Techniques in Genetics
- PLSC 4000: Plant Breeding
- RESM 4XXX: Project Seminar I & II can together count as one course toward the minor if the research project is conducted within the field of genetics and molecular biology.

Students are encouraged to select courses that can count toward this minor as well as toward their major.

10. Minor in Mathematics
15 credit hours including:
- MTHA 3000: Advanced Calculus
- MTHA 3001: Differential Equations
- MTHA 3002: Applied Linear Algebra
- STAA 3000: Introduction to Statistical Methods
- STAA 3001: Introduction to Planned Studies: Surveys & Experiments
- STAA 4000: Intermediate Statistical Methods
- STAA 4001: Computer Science
- STAA 4002: Data Structures & Numerical Methods
- ECOA 3000: Mathematical Economics
- ECOA 3003: Mathematical Programming
- ECOA 3004: Statistics for Economics & Business
- PHYS 1001: Physics for Life Sciences II
- PHYS 1003: Physics III

11. Minor in Pest Management
15 credit hours including:
- ENV A 3000: Principles of Pest Management
- MCRE 2000: Microbiology

Nine credit hours from the following:
- BIOA 2000: Principles of Plant Pathology
- BIOA 3002: General Entomology
- BIOA 3003: Weed Science
- BIOA 4001: Plant-Microbe Interactions
- ENVA 4002: Economic Entomology
- ENVA 4003: Advanced Plant Science

* If MCRE 2000 is required in a student’s major an additional elective must be selected from the list above.

Students may not select courses which are required for their major. Students in the Plant Science major are required to take 12 credit hours of the courses listed above for their major, they will only be required to complete the additional 12 credit hours to be granted the Minor in Pest Management.

Students should see the academic advisor in the Environmental Science Department for selection of appropriate courses.
12. Minor in Plant Science
15 credit hours of approved Plant Science courses (see Plant Sciences section, page 99)
Students cannot select courses which are required for their major. Students should see the academic advisor in the Plant & Animal Science Department for more information.

Approved Plant Science Courses:
IAGR 1000
PLSC 1000, 2000, 3000, 4000, 4002, 4003, 4004
SPEC 4010, 4011

F. Bachelor of Technology - Environmental Landscape Horticulture

Required Courses & Suggested Schedule
The Bachelor of Technology Environmental Landscape Horticulture is designed to prepare students for a career in the landscape horticulture profession. It will prepare students to work successfully in the diverse landscape industry or to create their own business within the industry. Years one and two of the program are satisfied by the successful completion of the Diploma of Technology - Managed Landscapes or a two-year landscape-related program approved by the Department of Environmental Sciences. Students who wish to pursue graduate studies should take RESM 4007 and RESM 4008.

Year III: Semester V
BIOA 2000: Plant Diversity
CHMA 1000: General Chemistry I
APSC 3019: Communications Technology
ENV A 2000: Environmental Studies I
HORT 3000: Environmental Processes & Natural Landscape Functions

Year III: Semester VI
ENV A 2000: Environmental Studies II
MOTA 1000: Small Business Entrepreneurship
HORT 2000: Landscape Plant Nursery Management
PLSC 3000: Theory & Practice of Plant Propagation
SOIL 2000: Introduction to Soil Science* or Three credit hours of electives

Year IV: Semester VII
ENV A 2004: Principles of Pest Management
ENV A 4005: Geographic Information Systems (GIS)
HORT 3001: Landscape Project Management
HORT 4000: Urban Trees Management
three credit hours of electives

Year IV: Semester VIII
APSC 3018: Technology Modules
APSC 3015: Irrigation & Drainage or three credit hours of electives
HORT 2003: Design & Construction of Turf Facilities
HORT 3008: Horticultural Therapy
six credit hours of electives
* Students who have not met the Soil Science requirements of the Diploma of Technology - Managed Landscapes will be required to take SOIL 2000.

G. Certificate Programs
Certificate of Specialization in Organic Agriculture
The Certificate of Specialization in Organic Agriculture initiative provides students with an opportunity to specialize in the expanding area of organic agriculture. The Certificate of Specialization in Organic Agriculture enables students to approach agriculture from their area of interest, to know they can be recognized for this accomplishment, and to continue to take other courses in agriculture toward a degree. Any student who has successfully completed four of the eligible agriculture credit courses and has an overall GPA of at least 2.0 in these courses can apply to receive a Certificate of Specialization in Organic Agriculture. Two of the courses may be substituted with approved organic agriculture courses offered by external institutions (see below). A Letter of Permission is required for these alternative courses.

Eligible Courses
AGRI 2000: Transition to Organic Agriculture
AGRN 2000: Organic Field Crop Management
ANSC 2004: Organic Livestock Production
ENV A 2002: Composting and Compost Use

Note: Students will not be required to take the courses in any particular order. AGRI 2000, ENV A 2002, and HORT 2001 are currently offered in the Fall semester; AGRN 2000 and ANSC 2004 are currently offered in the Winter semester.

All courses in the Certificate of Specialization in Organic Agriculture program are offered only through web-based distance education. Other institutions offering web-based courses that are approved for the certificate program:

- McGill University (Organic Soil Fertilization)
- University of Laval (French translation of courses AGRI 2000, AGRN 2000, ANSC 2004, and ENV A 2002)*
- University of British Columbia (Key Indicators of Agroecosystem Sustainability)
- University of Guelph (Organic Marketing)
- University of Manitoba (Organic Crop Production on the Prairies)
- University of Saskatchewan (Weed Control in Organic Agriculture)

* A student cannot receive credit for the same course in both French and English.

Certificate in Technology Education
The Certificate in Technology Education Program is intended to up-grade and diversify the technology background of Technology Education teachers presently working in Nova Scotia schools. It is approved in Nova Scotia by the Minister of Education for teaching license upgrading. This program is an innovative collaboration between the Faculty of Agriculture and Nova Scotia’s Technology Education Teachers Association, the Nova Scotia Department of Education, and Acadia University. The program provides a variety of hands-on experiences and teaching methodologies that strengthen traditional skills and introduce new technologies to better meet the demand for qualified technology educators for the public school system.

Instruction is conducted outside regular school hours, in evening or summer sessions. Students must complete 30 credit hours of approval courses with a cumulative GPA of 2.0. Twenty four credit hours must be from the Faculty of Agriculture course list; the remaining six credit hours are teaching methodology courses offered by Acadia University. The program must be completed in a maximum of six years. Courses can be taken in any sequence. The offering of this program is subject to and sufficient enrolment.

Required Courses (eight required)
ENCN 1001: Engineering Design I
APSC 1003: Practicum and Mechanics of Materials
APSC 1004: Wood Construction Technology
APSC 1005: Metal Construction Technology
APSC 2000: Environmental Impacts and Resource Management
APSC 2005: Fluid Power Technology
APSC 2008: Digital Electronics and Computer Interfacing
APSC 3001: Engineering Measurements and Controls
APSC 3013: Technology Modules
APSC 3019: Communications Technology

Acadia Courses
EDUC 3015: Problems in Education: Technological Education and Sustainability
EDUS 5873: Technology & Curriculum: Technology Studies

Note: It is the responsibility of individual teachers to ensure that they comply with the requirements of the NS Department of Education for continuing education and upgrades. For more information, see certification.ednet.ns.ca/ approval_upgrading.shtml.
H. Diploma in Technology - Business Management

The Diploma in Technology - Business Management is a program designed to provide the fundamentals of business management and at the same time allow students to concentrate in one of the following areas: Agriculture, Dairy Farming, Equine Studies, Greenhouse and Nursery, or Pet Studies. This two-year diploma provides students with the management, communication, and leadership skills necessary to manage a business such as a farm, a stable, or a pet related or greenhouse and nursery retail operation. Careers in marketing, sales, or service are other options.

This diploma is a unique mix of technical-credit courses and courses designated as workplace readiness courses (non-credit). The workplace readiness courses develop the practical skills and knowledge required to work in business and in the areas of concentration. The workplace readiness courses common to all the options include: career preparation, public speaking, first aid, Occupational Health and Safety (OHS), Workplace Hazardous Materials Information System (WHMIS), business ethics, and professionalism. Specialty workplace readiness courses are specific to the area chosen, e.g., Hazard Analysis and Critical Control Point (HACCP) and livestock medicines for the dairy farming and Agriculture options. Some of those courses will be scheduled throughout the semester, and others will be offered at the beginning of the semester. Students may be required to bring protective clothing and footwear, depending on the options chosen.

Some of the options - Pet Specialty, Agriculture, and Greenhouse and Nursery - have an internship requirement for the spring and summer semesters. Students will be expected to obtain employment in their area of specialty and complete a designated list of competencies. The employer will be expected to complete an assessment of the student's performance. See the course descriptions for more details.

Pathway to Bachelor of Science (Agriculture) Major In Agricultural Business Degree

Students who graduate from the Diploma in Technology Business Management program have the option of continuing their studies in the Bachelor of Science (Agriculture) program. Students who graduate from the Diploma in Technology Business Management program are awarded a minimum of 30 credit hours toward the BSc (Agriculture) degree, provided all other program requirements are met. In addition, in consultation with the academic advisor, DBM students may identify additional elective courses that are available to transfer for credit towards the BSc (Agriculture) program. Diploma in Technology Business Management students interested in exploring or developing a pathway to the BSc (Agriculture) are strongly encouraged to meet with their academic advisor early in their program.

Diploma in Technology - Business Management Concentrations

1. Agriculture

Students planning to operate/manage a farm or who wish to work in the agricultural industry in sales or service should choose this specialization. Along with the primary emphasis on business, students can choose among a number of livestock, field crop, or horticulture electives to develop a program best suited to their long-term career interests.

Required Courses

Year I Semester I
ACAD 0020: Skills for Academic Success*  
ANSC 0112: Animal Biology and Management or  
PLSC 0100: Utilization of Plant Resources  
ECOS 0100: Introductory Microeconomics  
EGLA 0101: Writing For Business  
MTHA 0100: Business Math  
MGTA 0100: Accounting  
SOIL 0100: Principles of Soil Science

Year I Semester II
CMMT 0020: Career and Employment Skills*  
MGTA 0011: Applied Accounting & Taxation  
MGTA 0014: Small Business Entrepreneurship  
SOIL 0200: Soil Management  
Elective**  
Elective**  
Elective**

Year I Semester III (Spring/Summer)
INTA 0100: Internship

Year I Semester IV
APSC 0200: Environmental Management  
MGTB 0020: Business Leadership, Ethics, and Professionalism*  
MGTA 0024: Financial Management  
MGTA 0026: Marketing  
Elective**  
Elective**  
Elective**

Year I Semester V
CMMT 0021: Introduction to Public Speaking*  
ECOS 0202: Production Economics  
FOOD 0020: Topics in Agriculture and Food Enterprise Management*  
MGTB 0030: Business Law  
MGTB 0031: Business Project  
MGTB 0032: Human Resource Management  
Elective**  
Elective**

Required Workplace Readiness certificates:

WHMIS, First Aid, OHS, Farm Safety, On-farm HACCP or QA, Livestock Medicines course (for students interested in livestock production)  
* Workplace Readiness course  
** Students can select elective courses from a number of areas (both degree and diploma, provided prerequisites are met) including agronomy, horticulture, and animal science. Distance Education courses on specific topic areas such as beef and sheep are also available. ENG/211 Technology in Practice Agriculture is highly recommended for students interested in crop production. Students will need to consult with the Agriculture Program Advisor to assist in the selection of courses best suited to their future career plans.

2. Dairy Farming

This specialization is designed for students interested in a career in the dairy industry, whether it is operating their own dairy farm, working as a herdsperson, or employed in sales or service for the dairy industry.

Required Courses

Year I Semester I
ACAD 0020: Skills for Academic Success*  
ANSC 0200: Dairy Industry I*  
ANSC 0212: Animal Biology and Management  
ECOS 0100: Introductory Microeconomics  
EGLA 0101: Writing For Business  
MTHA 0100: Business Math  
MGTA 0100: Accounting  
SOIL 0100: Principles of Soil Science

Year I Semester II
ANSC 0205: Optimizing Bovine Reproductive and Genetic Performance  
CMMT 0020: Career and Employment Skills*  
MGTA 0011: Applied Accounting & Taxation  
SOIL 0200: Soil Management

Year I Semester III
ANSC 0213: Principles of Dairy Melee and Handling  
ANSC 0214: Animal Food and Nutrition Management  
ANSC 0215: Principles of Agriculture*  
ANSC 0216: Small Business Management  
SOIL 0200: Soil Management  
Elective**  
Elective**  
Elective**

Year I Semester IV
ANSC 0204: Dairy Herd Health and Nutrition Management  
ANSC 0207: Records Management and Decision-making for Dairy Herds  
CMMT 0021: Introduction to Public Speaking*
nursery stock. On bedding plants, manager of a garden centre, and production manager of field cucumbers. Career possibilities include: owner of a greenhouse operation focused on grown nursery stock, and of greenhouse vegetable crops such as tomatoes and production and marketing of ornamental plants including greenhouse- and field-solid business education, this program provides a detailed understanding of the love and at the same time receive a solid business education that is directly transferable to any type of business operation.### 4. Greenhouse and Nursery

This concentration is designed for people who are passionate about plants and would like a business career in a "green" and "growing" industry. Along with a solid business education, this program provides a detailed understanding of the production and marketing of ornamental plants including greenhouse- and field-grown nursery stock, and of greenhouse vegetable crops such as tomatoes and cucumbers. Career possibilities include: owner of a greenhouse operation focused on bedding plants, manager of a garden centre, and production manager of field nursery stock.

**Required Courses**

**Year I Semester I**
- ACAD 0020: Skills for Academic Success*
- ANSC 0117: Companion Animal Growth, Development, and Nutrition
- APSC 0100: Environmental Management
- MGTA 0100: Business Law
- MTHA 0100: Business Math
- MGTA 0101: Accounting
- PLSC 0100: Principles of Soil Science
- SOIL 0100: Principles of Soil Science

**Year I Semester II**
- ANSC 0118: Principles of Animal Welfare and Husbandry
- ANSC 0119: Animal Food and Nutrition Management
- CMMT 0021: Introduction to Public Speaking*
- MGTA 0103: Business Law
- MGTA 0104: Small Business Entrepreneurship
- SOIL 0200: Soil Management

**Year II Semester III**
- ANSC 0116: Companion Animal Development and Nutrition
- ANSC 0124: Equine Health, Genomics and Reproduction
- APSC 0100: Environmental Management
- MGTA 0200: Business Leadership, Ethics, and Professionalism*
- MGTA 0201: Customer Relations Management
- MGTA 0204: Financial Management
- MGTA 0205: Human Resource Management
- MGTA 0206: Marketing
- SOIL 0200: Soil Management

**Year II Semester IV**
- ANSC 0114: Animal Food and Nutrition Management
- ANSC 0120: Small Ruminants and Their Management
- APSC 0100: Environmental Management
- MGTA 0200: Business Leadership, Ethics, and Professionalism*
- MGTA 0201: Customer Relations Management
- MGTA 0204: Financial Management
- MGTA 0205: Human Resource Management
- MGTA 0206: Marketing
- SOIL 0200: Soil Management

**Year III Semester V**
- ANSC 0124: Equine Health, Genomics and Reproduction
- APSC 0100: Environmental Management
- MGTA 0200: Business Leadership, Ethics, and Professionalism*
- MGTA 0201: Customer Relations Management
- MGTA 0204: Financial Management
- MGTA 0205: Human Resource Management

**Required Workplace Readiness certificates:**
- WHMIS, First Aid, OHS, Farm Safety, On-farm HACCP, Dairy Medicines course, Dairy Skills experience**
- **Workplace Readiness course**

**5. Pet Specialty**

This concentration is best suited for students interested in working in the pet industry as either owners or managers of pet-related businesses. Sales and service are other areas of employment, e.g., managing the pet section of a department store or selling pet-care products to other businesses. Along with the business courses, students will study the care and management of small animals, reptiles, and fish.

**Required Courses**

**Year I Semester I**
- ACAD 0020: Skills for Academic Success*
- ANSC 0116: Companion Animal Enterprise
- APSC 0100: Environmental Management
- EGCA 0100: Writing for Business
- MGTA 0100: Business Math
- MGTA 0101: Accounting
- PLSC 0100: Principles of Plant Resources
- SOIL 0100: Principles of Soil Science

**Year I Semester II**
- ANSC 0117: Companion Animal Growth, Development, and Nutrition
- ANSC 0120: Small Ruminants and Their Management
- APSC 0100: Environmental Management
- MGTA 0200: Business Leadership, Ethics, and Professionalism*
- MGTA 0201: Customer Relations Management
- MGTA 0204: Financial Management
- MGTA 0205: Human Resource Management
- MGTA 0206: Marketing
- SOIL 0200: Soil Management
**Elective**

**Year I Semester III (Spring/Summer)**
- INTA 0100: Internship

**Year II Semester IV**
- HORT 0200: Greenhouse & Floriculture Crop Management
- MGTA 0200: Business Leadership, Ethics & Professionalism*
- MGTA 0202: Managing Retail Operations & Physical Resources
- MGTA 0203: Customer Relations Management
- MGTA 0204: Financial Management
- MGTA 0206: Marketing
- PLSC 0200: Plant Propagation

**Required Workplace Readiness certificates:**
- WHMIS, First Aid, OHS, Workplace Safety, HACCP or QA

**Workplace Readiness course**

**Students can select elective courses from a number of areas including**
- Agriculture**
- Animal Health and Safety**
- Aquaculture**
- Environmental Science**
- Environmental Management**
- Equine Science**
- Forestry**
- Horticulture**
- Plant Science**
- Wildlife Management**

**Required Workplace Readiness certificates:**
- WHMIS, First Aid, OHS, Farm Safety, On-farm HACCP, Dairy Medicines course, Dairy Skills experience**
- **Workplace Readiness course**

**Elective**

**4. Greenhouse and Nursery**

This concentration is designed for people who are passionate about plants and would like a business career in a "green" and "growing" industry. Along with a solid business education, this program provides a detailed understanding of the production and marketing of ornamental plants including greenhouse- and field-grown nursery stock, and of greenhouse vegetable crops such as tomatoes and cucumbers. Career possibilities include: owner of a greenhouse operation focused on bedding plants, manager of a garden centre, and production manager of field nursery stock.

**Required Courses**

**Year I Semester I**
- ACAD 0020: Skills for Academic Success*
- ECIA 0100: Introductory Microeconomics
- EGCA 0100: Writing for Business
- MGTA 0100: Business Math
- MGTA 0101: Accounting
- PLSC 0100: Utilization of Plant Resources
- SOIL 0100: Principles of Soil Science

**Year I Semester II**
- CMFT 0020: Career and Employment Skills*
- MGTA 0101: Applied Accounting & Taxation
- MGTA 0103: Business Law
- MGTA 0104: Small Business Entrepreneurship
- SOIL 0200: Soil Management
- **Elective**
- **Elective**

**Year I Semester III (Spring/Summer)**
- INTA 0100: Internship

**Year II Semester IV**
- HORT 0201: Greenhouse & Floriculture Crop Management
- MGTA 0200: Business Leadership, Ethics & Professionalism*
- MGTA 0202: Managing Retail Operations & Physical Resources
- MGTA 0203: Customer Relations Management
- MGTA 0204: Financial Management
- MGTA 0206: Marketing
- PLSC 0200: Plant Propagation

**Required Workplace Readiness certificates:**
- WHMIS, First Aid, OHS, Workplace Safety, HACCP or QA

**Workplace Readiness course**

**Students can select elective courses from a number of areas including**
- Agriculture**
- Animal Health and Safety**
- Aquaculture**
- Environmental Science**
- Environmental Management**
- Equine Science**
- Forestry**
- Horticulture**
- Plant Science**
- Wildlife Management**

**Required Workplace Readiness certificates:**
- WHMIS, First Aid, OHS, Farm Safety, On-farm HACCP, Dairy Medicines course, Dairy Skills experience**
- **Workplace Readiness course**

**Elective**

**5. Pet Specialty**

This concentration is best suited for students interested in working in the pet industry as either owners or managers of pet-related businesses. Sales and service are other areas of employment, e.g., managing the pet section of a department store or selling pet-care products to other businesses. Along with the business courses, students will study the care and management of small animals, reptiles, and fish.

**Required Courses**

**Year I Semester I**
- ACAD 0020: Skills for Academic Success*
- ANSC 0116: Companion Animal Enterprise
- APSC 0100: Environmental Management
- EGCA 0100: Writing for Business
- MGTA 0100: Business Math
- MGTA 0101: Accounting
- MGTA 0104: Small Business Entrepreneurship
- CMFT 0020: Career and Employment Skills*
MGTA 0101: Applied Accounting & Taxation
MGTA 0104: Small Business Entrepreneurship
MGTA 0207: Advertising and Promotion

Year I Semester III (Spring/Summer)
GTA 0100: Internship

Year II Semester IV
ANSC 0201: Introduction to Companion Animal Health
ANSC 0212: Companion Animal Genetics and Reproduction
MGTA 0206: Business Leadership, Ethics, and Professionalism*
MGTA 0221: Managing Retail Operations and Physical Resources
MGTA 0203: Customer Relations Management
MGTA 0204: Financial Management

Year II Semester V
ANSC 0208: Biology and Care of Aquarium Fish and Reptiles** or
ANSC 0209: Biology and Care of Pet Birds and Small Mammals**
ANSC 0211: Companion Animal Facilities Management
CMMT 0201: Introduction to Public Speaking*
MGTA 0210: Business Law
MGTA 0211: Business Project
MGTA 0212: Human Resource Management
MGTA 0208: Retail Sales Management
Required Workplace Readiness certificates and experience:
WHMIS, First Aid, OHS, Workplace Safety, Small Animal Work Experience***

I. Diploma in Technology Managed Landscapes

The Diploma in Technology Managed Landscapes is a two-year program which helps prepare students for careers in landscape design, planning agencies, recreational parks, or institutions, or in self-employed roles as landscape horticultural technicians.

The Diploma in Technology Managed Landscapes is fully approved by the International Certification Council (ICC) and the Certification Committee of the Canadian Nursery Landscape Association (CNLA). Interested students may apply for a Passport to Certification that enables modular training and testing toward international recognition as a Certified Horticultural Technician. The curriculum fully encompasses the requirements for certification in various industry sectors. Students who successfully complete the Diploma in Technology Managed Landscapes with a cumulative average of at least 2.0 are eligible for admission to the two-year Bachelor of Technology Environmental Landscape Horticulture program, as seniors one and two of the B Tech Environmental Landscape Horticulture program are satisfied by the successful completion of the Diploma.

Required Courses
Year I Semester I
EGLA 0101: Writing for Business
HORT 0100: Landscape Plants I
HORT 0102: Turfgrass Production and Management
HORT 0103: Landscape Horticulture I
SOIL 0100: Principles of Soil Science

Year I Semester II
BIOA 0101: Plant Physiology and Stress Management
APSC 0101: Horticultural Technology
HORT 0101: Landscape Plants II
HORT 0206: Landscape Maintenance
HORT 0102: Landscape Installations

Year II Semester III
BIOA 0201: Ecology
APSC 0100: Surveying
HORT 0204X: Landscape Plants III
HORT 0207: Arboriculture
HORT 0209: Landscape Horticulture II

Year II Semester IV
BIOA 0101: Plant Pathology
BIOA 0201: Weed Science
HORT 0204Y: Landscape Plants III
HORT 0201: Residential Landscape Design and Construction
SOIL 0209: Soil Management

Required Workplace Readiness certificates:
CMHTE0202 Career and Employment Skills
CMHTE0201 Introduction to Public Speaking

J. Diploma in Technology Plant Science

The two-year Diploma in Technology Plant Science program prepares graduates for exciting careers in the dynamic plant-based industries of the future. Emerging information and technology related to bio-energy, nutrition, health, environmental protection, and plant genetics will make a plant science education a valuable asset. This program provides an innovative approach to the production and use of plant resources, with emphasis on responsible environmental and social stewardship, commercialization of ideas and strong practical skills in horticultural or agronomic plant production techniques, entrepreneurship, problem-solving, communication, and decision-making, all built on a solid foundation in the bio-sciences.

Studies begin with a first year of required courses that allow students to build their knowledge in the bio-sciences, plant production, and business, and to develop their interests. The program then provides the opportunity in the second year to select from a wide variety of courses to give each student the flexibility to match courses to their interests and career goals. With the help of a knowledgeable program advisor, students can choose from courses in edible horticulture, ornamental horticulture, agronomy, plant science, business, or engineering.

Pathway to Bachelor of Science (Agriculture) Major in Plant Science Degree

Students who graduate from the Diploma in Technology Plant Science program have the ability to make significant progress towards the completion of the BSc (Agriculture) major in Plant Science degree program. Students who graduate from the technology program are awarded a minimum of 30 credit hours toward the BSc (Agriculture) degree, provided all other program requirements are met. In addition, in consultation with the Plant Science Technology Academic Adviser, students can identify additional elective courses that will transfer for credit toward the BSc (Agriculture) major in Plant Science degree program. Plant Science students interested in exploring a pathway from the Diploma to the BSc (Agriculture) (are strongly encouraged to meet with their academic adviser early in their program.

Required Courses
Year I Semester I
BIOA 0200: Entomology
EGLA 0101: Writing for Business
MGTA 0100: Accounting
PLSC 0100: Principles of Plant Resources
PLSC 0200: Plant Propagation
SOIL 0100: Principles of Soil Science

Year I Semester II
BIOA 0102: Plant Physiology and Stress Management
BIOA 0101: Plant Pathology
CSCA 0200: Computer Methods
MGTA 0104: Small Business Entrepreneurship
MGTA 0201: Human Resource Management

Semester III and Semester IV
Twenty-four credit hours (six courses in each semester) chosen in consultation with a program advisor. One course (PLSC 0202), if chosen, is taken during the Spring/Summer between Semesters II and III.

Facility of Agriculture
Recommended Electives

The following courses are suggested as electives in the study areas related to the Diploma in Technology: Plant Science. Courses not on the list may also be eligible as electives, if approved by the student and the VT faculty. Students choosing other technical-level courses or degree courses at the 1000 and 2000 level. Consultation with the program advisor is recommended. Many of these courses have prerequisites; it is the student’s responsibility to ensure that these requirements are met.

Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRN 0201</td>
<td>Crop-Based Cropping Systems</td>
<td>Fall</td>
</tr>
<tr>
<td>ANSC 0012</td>
<td>Animal Biology and Management</td>
<td>Fall</td>
</tr>
<tr>
<td>APSC 0010</td>
<td>Environmental Management</td>
<td>Fall</td>
</tr>
<tr>
<td>APSC 0011</td>
<td>Technology for Precision Agriculture</td>
<td>Fall</td>
</tr>
<tr>
<td>HORT 0100</td>
<td>Landscape Plants I</td>
<td>Fall</td>
</tr>
<tr>
<td>HORT 0101</td>
<td>Greenhouse and Floriculture Crop Management</td>
<td>Fall</td>
</tr>
<tr>
<td>HORT 0112</td>
<td>Vegetable Production</td>
<td>Fall</td>
</tr>
<tr>
<td>HORT 0120</td>
<td>Small Fruit Crops</td>
<td>Fall</td>
</tr>
<tr>
<td>HORT 0124</td>
<td>Landscape Plants III</td>
<td>Fall</td>
</tr>
<tr>
<td>HORT 0125</td>
<td>Turfgrass Production and Management</td>
<td>Fall</td>
</tr>
<tr>
<td>HORT 0130</td>
<td>Landscape Horticulture I</td>
<td>Fall</td>
</tr>
<tr>
<td>HORT 0137</td>
<td>Eventually</td>
<td>Fall</td>
</tr>
<tr>
<td>HORT 0131</td>
<td>Principles of Organic Horticulture (Distinction)</td>
<td>Fall</td>
</tr>
<tr>
<td>MGTG 0021</td>
<td>Financial Management</td>
<td>Fall</td>
</tr>
<tr>
<td>PLSC 1000</td>
<td>Farm Woodlot Management</td>
<td>Fall</td>
</tr>
</tbody>
</table>

Winter

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRN 0100</td>
<td>Potato Production</td>
<td>Winter</td>
</tr>
<tr>
<td>AGRN 0201</td>
<td>Forage-Based Crop Management</td>
<td>Winter</td>
</tr>
<tr>
<td>ANSC 0014</td>
<td>Animal Feed and Nutrition Management</td>
<td>Winter</td>
</tr>
<tr>
<td>APSC 0011</td>
<td>Agricultural Technology</td>
<td>Winter</td>
</tr>
<tr>
<td>HORT 0100</td>
<td>Landscape Plants II</td>
<td>Winter</td>
</tr>
<tr>
<td>HORT 0101</td>
<td>Landscape Plant Nursery Management</td>
<td>Winter</td>
</tr>
<tr>
<td>HORT 0103</td>
<td>Tree Fruit Crops</td>
<td>Winter</td>
</tr>
<tr>
<td>HORT 0104</td>
<td>Landscape Plants III</td>
<td>Winter</td>
</tr>
<tr>
<td>MGTG 0021</td>
<td>Business Law</td>
<td>Winter</td>
</tr>
<tr>
<td>MGTG 0027</td>
<td>Advertising and Promotion</td>
<td>Winter</td>
</tr>
<tr>
<td>MGTG 0028</td>
<td>Retail Sales Management</td>
<td>Winter</td>
</tr>
<tr>
<td>PLSC 1000</td>
<td>Small Crop Management</td>
<td>Winter</td>
</tr>
<tr>
<td>SOIL 0100</td>
<td>Soil Management</td>
<td>Winter</td>
</tr>
</tbody>
</table>

Spring/Summer (between Years 1 and 2)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLSC 0012</td>
<td>Plant Science Techniques</td>
<td>Spring/Summer</td>
</tr>
</tbody>
</table>

K. Diploma in Technology Veterinary Technology

The Veterinary Technology (VT) Program prepares graduates with the skills and knowledge required to enter veterinary practice as technical assistants to veterinarians. Veterinary technicians have also made successful careers in a variety of other fields, including the management of animal shelters, research with animals in universities and private companies, sales for veterinary supply companies, and employment with zoos and in wildlife rehabilitation.

The Veterinary Technology Program is a two-year program with four standard semesters and an intersession after the first year. In addition to on-campus learning there are off-campus externships at the Atlantic Veterinary College and in general veterinary practices. To reflect the major employment opportunities in Atlantic Canada, the program is orientated mainly towards companion animals. The medical large-animal content is appropriate for graduates entering mixed practice and for those who wish to further develop their livestock or equine competence. Under the supervision of veterinarians and veterinary technicians in the VT program’s Budding Animal Clinic, students learn the skills and tasks required of them in companion animal practice.

Students in the Veterinary Technology Program must successfully complete 16 credit hours of required courses each academic year (Fall/Winter) to be eligible to continue in the program the following year. Students who do not meet these requirements, or who withdraw for any reason, will need to reapply if they wish to return to the program. They will be considered along with the new pool of applicants and will not have preferential admittance. They must fulfill all orientation and application procedures, and adhere to the February 28 application deadline. Students who wish to return in the winter semester may only do so if there is space in the program, and they are required to supply by December 1.

The Veterinary Technology Program is accredited by the Canadian Veterinary Medical Association. The animal facilities are approved for teaching by the Canadian Council on Animal Care. The Animal Clinic is accredited by the Nova Scotia Veterinary Medical Association.

Required Courses

Year I Semester I

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGLA 0011</td>
<td>Writing for Business</td>
<td>Fall</td>
</tr>
<tr>
<td>VTEC 0111</td>
<td>Animal Medicine and Nursing I</td>
<td>Fall</td>
</tr>
<tr>
<td>VTEC 0112</td>
<td>Clinical Exercises I</td>
<td>Fall</td>
</tr>
<tr>
<td>VTEC 0113</td>
<td>Veterinary Clinical Pathology I</td>
<td>Fall</td>
</tr>
<tr>
<td>VTEC 0114</td>
<td>Fundamentals in Veterinary Technology I</td>
<td>Fall</td>
</tr>
<tr>
<td>VTEC 0115</td>
<td>Anatomy-Physiology-Pathology I</td>
<td>Fall</td>
</tr>
</tbody>
</table>

Year I Semester II

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 0017</td>
<td>Companion Animal Behaviour</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0111</td>
<td>Animal Medicine and Nursing II</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0112</td>
<td>Clinical Exercises II</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0113</td>
<td>Veterinary Clinical Pathology II</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0114</td>
<td>Fundamentals in Veterinary Technology II</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0115</td>
<td>Anatomy-Physiology-Pathology II</td>
<td>Spring</td>
</tr>
</tbody>
</table>

Year II Semester III

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTEC 0111</td>
<td>Internship in Veterinary Technology</td>
<td>Fall</td>
</tr>
<tr>
<td>VTEC 0112</td>
<td>Externship at the Atlantic Veterinary College</td>
<td>Fall</td>
</tr>
<tr>
<td>VTEC 0113</td>
<td>Externship in General Veterinary Practice</td>
<td>Fall</td>
</tr>
</tbody>
</table>

Year II Semester IV

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTEC 0121</td>
<td>Animal Medicine and Nursing III</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0122</td>
<td>Clinical Exercises III</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0123</td>
<td>Veterinary Clinical Pathology III</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0124</td>
<td>Fundamentals in Veterinary Technology III</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0125</td>
<td>Livestock and Equine Principles Elective*</td>
<td>Spring</td>
</tr>
</tbody>
</table>

Year II Semester V

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTEC 0121</td>
<td>Animal Medicine and Nursing IV</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0122</td>
<td>Clinical Exercises IV</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0123</td>
<td>Veterinary Clinical Pathology IV</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0124</td>
<td>Fundamentals in Veterinary Technology IV</td>
<td>Spring</td>
</tr>
<tr>
<td>VTEC 0125</td>
<td>Livestock &amp; Alternative Pet Medicine Elective*</td>
<td>Spring</td>
</tr>
</tbody>
</table>

* Electives must be approved by the Program Coordinator.

IV. Continuing and Distance Education

A variety of courses and programs, including credit and non-credit certificates, online programs, professional development and skills training are offered through Continuing and Distance Education. Our education is outcomes-based, and with formats and scheduling that work for the students. Continuing and Distance Education offers on-site training, including the block release sections of the Farm Technician Apprenticeship Program held in Prince Edward Island.

For information on courses and programs visit dal.ca/agriculture or call (902) 893-6566.

V. Canadian Association of Diploma in Agriculture Programs

The Canadian Association of Diploma in Agriculture Programs (CADAP) is an association of post-secondary, educational institutions offering diploma programs in agriculture. The purpose of the association is to promote excellence in agricultural education. The association provides opportunities for technical students in several of the programs to enroll in another college for one semester of their second academic year. By encouraging participation in the programs of another CADAP institution, another region of Canada, or another country, CADAP provides opportunities for students:

- to broaden their studies
- to become more familiar with another region of Canada, or another country
- to live a different cultural experience, and
- to gain practical experience in another region of Canada or another country.

CADAP offers scholarships to students in diploma programs. For more information please see their website www.cadap.ca.
Any student wishing to do a technical exchange program at another institution must have that program approved. The request should be submitted to the Registrar’s Office by the student’s program advisor or the Department Head. Upon approval of the program, the student will be issued a Letter of Permission detailing which courses will be replaced in the student's program and which courses must be completed at the host institution. The program must be laid out before the student leaves for the exchange institution.

VI. Professional Organizations for Agrologists

Agrology is “the profession of applying science and scientific principles to the business and art of agriculture”. University graduates who are skilled in the science and business of agriculture are encouraged to join their provincial Institute of Agrologists. Provincial Institutes offer the opportunity to get to know and exchange ideas with other professional agrologists in the province and in other parts of Canada through membership in the Agricultural Institute of Canada. Membership in an Institute of Agrologists provides an element of fellowship in the profession, as well as opportunities to attend scientific conferences and educational tours and to receive newsletters and technical publications. Membership in an Institute is required by provincial statute to practice agrology in most provinces.

Academic

I. Undergraduate Degree Level Course Descriptions

ACAD 1050.03: Foundations in Academic Study & Research.

This course introduces participants to university culture and helps them to enhance academic performance. Course experiences build a practical understanding of the learning process at the university level, enabling students to develop strategies to be more effective learners. Topics include performance expectations, conventions of academic critical reading and writing, research methods, academic literature review and analysis, discipline-specific learning strategies, goal setting, and effective use of university resources.

NOTE: Fall Semester

FORMAT: Lecture 3 hours

II. Technology Level Course Descriptions

ACAD 0020.00: Skills for Academic Success.

The objective of this course is to facilitate the successful transition from high school or the workplace to university life. This course will expose students to the functions of various student services on campus, encourage the development of good study skills, and explore the life management skills necessary to achieve success at university.

NOTE: Fall Semester – This is a Workplace Readiness course required for the Diploma in Business Management.

FORMAT: Lecture 1 hour per week.

ACAD 0021.00: University Study Skills.

This course provides students with the skills they need to be successful university students, including note taking, textbook reading, exam taking, and time management skills. The course will introduce students to the resources available on campus and will help them understand their learning styles and strengths. Students in this course will learn how to balance their commitments and use their study time efficiently. It provides an essential bridge for students coming to university directly from high school, as well as an important refresher for students who have had a break in their studies.

NOTE: Fall and Winter semesters

FORMAT: Lecture (six two-hour sessions).
Agriculture

I. Undergraduate Degree Level Course Descriptions

AGRI 1000.03: Agricultural Ecosystems (A).
This course is an introduction to agriculture and food systems. The principles of agricultural production as studied in the disciplines of animal science, plant science, agricultural engineering, and soil science will be integrated to give a comprehensive view of agricultural ecosystems. Course work will include lectures, laboratories, problem-solving exercises, and small-group work. There will be a farm tour for all AGRI 1000 students on September 19, 2012, from 1 pm until 7 pm. The course will expose students to issues and raise questions to be considered during the remainder of their undergraduate careers. The goals of this course are to provide students with knowledge of the application of science to agriculture, and to assist students to understand the integrated nature of agriculture and food systems in both regional and global contexts. Associated course goals are to develop communication and independent learning skills and the ability to function effectively in teams, situations, and to stimulate students to think critically, logically, and quantitatively while respecting the values and ideas of others.
NOTE: Fall semester
FORMAT: Lecture 3 hours, lab and/or tutorial 2 hours per week.

AGRI 2000.03: Transition to Organic Agriculture (A).
This course is recommended for students looking for a general introduction to organic agriculture. The course consists of five stand-alone modules: Why organic?, Organic Certification, Planning the Farm System, Transition to Organic Crop Production, and Transition to Organic Livestock Production. Throughout the course students will be encouraged to participate in discussion groups and use the organic information resources currently available over the Internet.
NOTE: Fall semester
FORMAT: DE—only offered as a web-based distance education course.

AGRI 3001.03: Issues in Agricultural Health and Safety (A, H).
This course is a series of ten online modules on Agricultural Health & Safety designed for agricultural students, farm managers and owner-operators, and anyone else who wishes to obtain a better understanding of the health and safety issues present on Canadian farms. The course describes the health and safety situation and the major health and safety risks in the agriculture industry, and highlights the importance of improving the current situation.
NOTE: Fall or Winter semester
FORMAT: DE—only offered as a web-based distance education course.
PREREQUISITE: Third-year standing

AGRI 4000.03: Contemporary Issues in Agriculture (A).
This course allows senior students in all disciplines to discuss current topics of interest to agricultural professionals. These topics could include soil degradation, integrated pest management, antibiotics in feed, the occupation of farming, animal welfare, etc. Students will be given weekly required readings.
NOTE: Fall semester. This course has limited enrollment.
FORMAT: 3-hour seminar weekly.
PREREQUISITE: Third- or fourth-year standing

Agronomy

I. Undergraduate Degree Level Course Descriptions

AGRN 2000.03: Organic Field Crop Management (A). DE.
This course will introduce students to organic principles and practices applied to the production and management of field crops. The criteria for optimum yield and quality of field crops are presented within the context of organic farming principles, sustainable soil and nutrient management, and the requirements for organic certification. Five stand-alone modules provide a framework for study:*Soil and Field Management Practices: methods used in organic farming to build and maintain soil fertility, preserve soil structure, conserve and recycle nutrients, reduce weed pressure, and reduce outbreaks of pests and diseases.*Nutrient Management Planning: how to optimize the efficiency of nutrient cycling, improve resource utilization, and minimize nutrient loss on the farm.*Forage: organic methods of production for pasture, hay, silage, cover crops, or grain; manure.*Row Crops: organic methods of production of cereal row crops (corn, soybean, root crops); outdoor potatoes, cucurbits, and others.*Grains (spring wheat, winter wheat, winter rye), spring-seeded grains (spring wheat, oats, and barley); cereals (canna, flax), and others.
NOTE: Winter semester
FORMAT: DE—only offered as a web-based distance education course.

This course takes a systems approach to the study of crop and soil management in rotations involving the growing of the principal cereals, oilseeds, pulses, and other grains, and their relationship to other crops in a rotation. Through a whole-farm approach over time, it studies environmentally and economically sustainable methods for grains cash crops and grain-based animal feed production. It stresses soil and water conservation and an understanding of the principles and processes of the nutrient cycles, which are critical to improving the food production environment. Students will gain knowledge of grains as they relate to people and the environment, from soil to shelf, both in a Maritime temperate climate and in an international context.
NOTE: Fall semester
FORMAT: Lecture 1 hour, lab 2 hours per week.
CROSS-LISTING: AGRN 0201

Forage crop production, management, and use will be discussed in the context of agricultural ecosystems. Emphasis will be placed on beneficial management practices to reduce negative impacts on the environment while maintaining profitability and sustainability of rural communities. Topics covered will include pastures, hay, and silage, as well as the role of perennial and annual forages in crop rotations.
NOTE: Winter semester
FORMAT: Lecture 1 hour, lab 2 hours per week.
CROSS-LISTING: AGRN 0202

AGRN 2008.03: Potato Production (A).
History, biochemistry, and eco-physiology of the crop are emphasized. Production practices for seed, table, and processing stock and marketing in the Atlantic Provinces are examined. Soil fertility, crop health management strategies, and nutritional qualities and storage are covered in detail. Some commercial operations are visited.
NOTE: Winter semester
FORMAT: Lecture 1 hour, lab 2 hours per week.
PREREQUISITE: Preparatory: AGRN 1000
CROSS-LISTING: AGRN 0200
Animal Science

I. Undergraduate Degree Level Course Descriptions

This course is an introduction to the behaviour, anatomy, nutrition, and history of horses. What behavioral principles underlie horse training? How is their performance influenced by their conformation? What is unique about their digestive system? How do horses evolve? The course will include discussion of sources and treatment of illness and disabilities, and the biology and control of common parasites; demonstrations of English and Western riding (students will not be taught to ride); visits to the Truro Raceway; study of the importance of shearing to the working horse; and exposure to the use of horses as draft animals.
NOTE: Full semester
FORMAT: Lecture/lab 3 hours per week with online component.
PREREQUISITE: second-year standing or equivalent, in any program
CROSS-LISTING: ANSC 0217

ANSC 2004.03: Organic Livestock Production (A) DE.
This course provides information on organic livestock production in general, as well as more detailed analyses of organic beef and sheep, dairy, and swine and poultry production. An in-depth study of organic approaches to livestock health is included. The course is divided into five stand-alone modules: Introduction to Organic Livestock Production, Organic Beef and Sheep Production, Organic Dairy Production, Organic Swine and Poultry Production, and Health Management in an Organic Livestock System. A variety of information delivery methods will be used, including text on the Internet, a printed resource guide, and a CD-ROM with video clips and slide shows. Students will be encouraged to participate in discussion groups and use the organic information resources currently available over the Internet. Evaluation will be based on participation, written assignments, module quizzes, and a final exam.
NOTE: Winter semester
FORMAT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: AGRI 1000

Through a mixture of classroom lectures and exercises at Faculty of Agriculture, Dalhousie, this course will enable students to recognize common breeds of farm animals, to describe livestock production cycles and methods, and to understand the place of farm animals in the world food system. The course will provide introduction to subject matter covered in more senior animal science courses, such as nutrition, reproduction, behavior and welfare, animal anatomy, and environmental physiology. The interaction of livestock production with our environment will be examined.
NOTE: Full semester
FORMAT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: AGRI 1000

ANSC 2006.03: Equine Health, Genetics and Reproduction.
Students examine in detail the processes of reproduction and lactation in horses, as well as the requirements for care and management of the mare during breeding, parturition, and lactation. Students also study the growth and development of the foal and the requirements for the care of the foal. The common breeds of horses

II. Technology Level Course Descriptions

AGRN 0200.02: Potato Production.
History, biosystematics, and eco-physiology of the crop are emphasized. Production practices for seed, table, and processing stock and marketing in the Atlantic Provinces are examined. Soil fertility, crop health management strategies, and nutritional qualities and storage are covered in detail. Some commercial operations are visited.
NOTE: Winter semester
FORMAL: Lecture 3 hours, lab 2 hours per week.
CROSS-LISTING: AGRN 0200

AGRN 0201.02: Cereal-Based Cropping Systems.
The course takes a systems approach to the study of crop and soil management in rotations involving the growing of the principal cereals, oats, barley, peas, and other grains, and their relationship to other crops in a rotation. Through a whole-farm approach over time, students will develop environmentally and economically sustainable methods for grain cash crops and grain-based animal feed production. The course will stress soil and water conservation and an understanding of the principles and processes of the nutrient cycles, which are critical to improving the food production environment. Students will gain knowledge of grains as they relate to people and the environment, from soil to shelf, both in a Maritime temperate climate and in an international context.
NOTE: Full semester
FORMAT: Lecture 3 hours, lab 2 hours per week.
CROSS-LISTING: AGRN 0201

AGRN 0202.02: Forage-Based Cropping Systems.
The second course in cropping systems focuses on the forage crops. Students will acquire the basic knowledge and skills for the management of forage crops within cropping systems in a socially and environmentally responsible manner. Soil and water conservation will be emphasized in the context of production agriculture. Production and management for sustainable yields of forage crops under conditions specific to Atlantic Canada will be emphasized. Students will develop investigative and critical thinking skills to evaluate forage publications and enable them to address production challenges as they arise.
NOTE: Winter semester
FORMAT: Lecture 3 hours, lab 2 hours per week.
CROSS-LISTING: AGRN 0202
and the genetics of coat colour, conformation, and performance potential will be discussed. The course will enable students to evaluate the genetic merit of sire and dam, and to plan matings and genetics strategies to meet the genetic goals of their particular operation. Students will obtain a basic knowledge of health care and disease prevention, and be able to address issues relating to biosecurity.

NOTE: Fall semester
FORMATT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: ANSC 2002
CROSS-LISTING: ANSC 5214

ANSC 2007.03: Beef Production and Management (A).
This course will focus on the management of commercial beef farms, ranging from cow/calf to stocker/finisher operations. Components of breeding, nutrition, and behaviour will be discussed. A systems approach to the management of the farm will be undertaken. The role of the manager in optimizing production is an important component. A historical perspective on the Atlantic beef industry along with an overview of emerging trends will be part of the course. Key beef industry issues such as the impact of BSE, animal welfare, and beef marketing will be discussed.

NOTE: Fall semester
FORMATT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: ANSC 2005 or ANSC 5210
CROSS-LISTING: ANSC 5218

ANSC 3000.03: Animal Breeding (A).
The course covers variation in animal performance and the techniques whereby genetic superiority can be recognized and improved. Goals and programs of improvement are discussed with reference to commercial farm species. The emphasis is on programs in current use but applications of new technologies are included. Labs deal primarily with data collection, analysis, and computer applications.

NOTE: Winter semester
FORMATT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: GENE 2000, STAT 2000

ANSC 3001.03: Animal Health (A).
This course seeks to impart an understanding of animal health and its importance in livestock production enterprises. Students are taught to recognize signs of health and illness and to understand the principles and practices of disease prevention and treatment. Common infectious and non-infectious diseases and illness common in Atlantic Canada are studied. The need for veterinary collaboration is emphasized, and the circumstances in which referral should be sought are discussed.

NOTE: Winter semester
FORMATT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: MCRK 2000

ANSC 3002.03: Domestic Animal Behaviour (A).
This course studies the behaviour of farm animals and presents information that is relevant to the care and management of animals. Topics covered include domestication, animal communication, social behavior, reproduction and sexual behavior, development of behavior, genetics of behavior, and the influence of management systems and practices on behavioral characteristics. Considerable attention is also given to welfare issues in animal agriculture.

NOTE: Fall semester
FORMATT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: Biologia 2000 or Biologia 2005

ANSC 3003.03: Eggs and Dairy Products (A).
This course deals with the nature and composition of eggs and milk, and their products such as cheese and yogurt, by-products, processing, and storage.

NOTE: Fall semester
FORMATT: Lecture 2 hours, lab 2 hours

ANSC 3004.03: Meat Science (A).
This course covers growth of meat animals and the nature of muscle, bone, and fat; conversion of muscle to meat; quality and grading of fresh meat; by-products, meat processing, meat products, and by-products.

NOTE: Winter semester
FORMATT: Lecture 2 hours, lab 2 hours

ANSC 3005.03: Animal Welfare (A).
This course deals with the well-being of animals, with emphasis on farm animals. Issues include what we mean by animal welfare, what the animal welfare issues are in modern agriculture and in modern society, and how we use ethology and physiology to assess animal welfare. The course outlines the international efforts to improve farm animal welfare. There is a term project in which students attempt to assess animal welfare in a particular farm (or other) environment, and all students will participate in class debates on current issues in animal welfare.

NOTE: Winter semester
FORMATT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: At least third-year standing

ANSC 3006.03: Companion Animal Biology.
This course allows students to gain insight into the genetic, physiological, and behavioral characteristics of companion animals. Students will be introduced to responsible pet ownership and the importance of spaying and neutering. The course will cover topics such as the biology of companion animals, the effects of nutrition on health, and the importance of exercise and play in promoting animal well-being.

NOTE: Winter semester
FORMATT: Lecture 3 hours, lab 2 hours. Offered in alternate years; next offered in 2014/2015.
PREREQUISITE: Biologia 2000, GENE 2000

ANSC 4003.03: Avian Production Systems (A).
This course will focus on the management of commercial poultry, poultry genetics, nutrition, and disease prevention. The course will cover aspects of poultry production including nutrition, management, breeding, housing, health, and disease prevention. A systems approach to the management of animal facilities.

NOTE: Winter semester
FORMATT: Lecture 3 hours, lab 3 hours. Offered in alternate years; next offered in 2014/2015.
PREREQUISITE: ANSC 2005, NUTR 1000

ANSC 4004.03: Ecology of Milk Production in Ruminants (A).
Milk is a highly priced food, the efficient forage-based production of which has been a major economic phenomenon for humanity. Four main species — cattle, buffalo, goats and sheep — have been selected to produce milk for humans. All are from the Bovidae Family (Suborder Ruminantia) of ruminants. Cows are the main source of milk for humans. Dairy cows, milk production, feeding, management, and the genetics of coat colour, conformation, and performance potential will be discussed.

NOTE: Winter semester
FORMATT: Lecture 3 hours, lab 3 hours. Offered in alternate years; next offered in 2014/2015.
PREREQUISITE: ANSC 2005

ANSC 4005.03: Swine Science and Pork Production (A).
This course will focus on the management of commercial pork production. The course will cover aspects of pork production including nutrition, management, breeding, housing, health, and disease prevention. The course will cover topics such as the biology of swine, the genetics of swine, swine feeding, and the importance of these for management of animal facilities.

NOTE: Fall semester
FORMATT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: ANSC 2005, GENE 2000

ANSC 4006.03: The Science of Modern Sheep Farming (A).
Sheep are among the first animals to be domesticated and since then, sheep have been bred for different roles: wool, meat, milk. In the Maritimes, the importance of sheep in the rural economy is on the increase. This course will guide students through the science of sheep production. Nutrition, parasite management, breeding, housing, health and sheep marketing will be discussed. The traditional roles of sheep have included as the topic permits. Laboratory sessions will cover aspects of sheep management such as wool production, nutrition, parasite control, and sheep mating and genetics.

NOTE: Winter semester
FORMATT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: Biologia 2000, GENE 2000

ANSC 5006.03: The Science of Modern Dairy Farming (A).
Dairy farming is a major economic activity in many countries. This course will focus on the management of commercial dairy farms, including nutrition, management, breeding, and disease prevention. The course will cover topics such as the biology of dairy cows, the genetics of dairy cows, and the importance of these for management of animal facilities.

NOTE: Fall semester
FORMATT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: Biologia 2000, GENE 2000

ANSC 5007.03: Beef Production and Management (A).
This course will focus on the management of commercial beef farms, ranging from cown-calf to stocker/finisher operations. Components of breeding, nutrition, and behaviour will be discussed. A systems approach to the management of the farm will be undertaken. The role of the manager in optimizing production is an important component.

NOTE: Fall semester
FORMATT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: ANSC 5006 or ANSC 5005
CROSS-LISTING: ANSC 5218

ANSC 5008.03: Ruminant Nutrition (A).
This course will focus on the management of commercial dairy farms, including nutrition, management, breeding, and disease prevention. The course will cover topics such as the biology of dairy cows, the genetics of dairy cows, and the importance of these for management of animal facilities.

NOTE: Winter semester
FORMATT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: ANSC 5005, NUTR 3001

ANSC 5009.03: Swine Science and Pork Production (A).
This course will focus on the management of commercial pork production. The course will cover aspects of pork production including nutrition, management, breeding, housing, health, and disease prevention. The traditional roles of pork have included as the topic permits. Laboratory sessions will cover aspects of pork production such as pork feeding, nutrition, parasite control, swine mating and genetics.

NOTE: Winter semester
FORMATT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: ANSC 5005, GENE 5000

ANSC 5010.03: Avian Production Systems (A).
This course will focus on the management of commercial poultry, poultry genetics, nutrition, and disease prevention. The course will cover aspects of poultry production including nutrition, management, breeding, housing, health, and disease prevention. A systems approach to the management of animal facilities.

NOTE: Winter semester
FORMATT: Lecture 3 hours, lab 3 hours. Offered in alternate years; next offered in 2014/2015.
PREREQUISITE: ANSC 5005, NUTR 1000
FORM A T: Lecture 3 hours, lab 2 hours.

NOTE: Fall semester
FORM A T: Lecture 3 hours, lab 3 hours.

PREREQUISITE: AGRH 1000, AGRH 2002

ANSC 4008.03: Carnivore Biology.
This is an advanced-level course in mammalian biology focusing on species in the Order Carnivora. The specialized features of the biology of mammalian carnivores will be reviewed, emphasizing seasonal breeding and reproduction, nutrition and physiology, and health and disease. Species discussed will include feline, companion, and zoo animals, and wildlife. The practical aspects of the course will use the mink as a model animal.
NOTE: Winter semester
FORM A T: Lecture 3 hours, lab 2 hours.

PREREQUISITE: BIO 3000, NUTR 3000

ANSC 4009.03: Directed Studies in the Animal Sciences.
This course permits senior students, under the direction of faculty members, to pursue their interest in areas not covered, or not covered in depth, by other courses.
NOTE: Full, Winter or Summer semester
FORM A T: Lecture 3 hours, lab 2 hours.

PREREQUISITE: Permission of the Department/Program Advisor; students must obtain consent of an instructor who is willing to be a supervisor
EXCLUSION: Note: ANSC 4009 cannot duplicate subject matter covered through regular course offerings.

II. Technology Level Course Descriptions

ANSC 0020.02: Dairy Industry I.
Students participate in an examination of the structure of the dairy industry and of the supply management system in which dairy farms operate. They will also be required to identify current issues facing the industry and to examine their potential impact on sustainability and opportunities for the Canadian dairy industry.
NOTE: Fall semester – This is a Workplace Readiness course required for the Dairy Farming option in the Diploma in Business Management.
FORM A T: Lecture 1 hour

ANSC 0021.02: Dairy Industry II.
A continuation of the topics in ANSC 0020. Students extend their examination of the issues facing the dairy industry in a series of lectures presented by speakers from a variety of fields.
NOTE: Winter semester – This is a Workplace Readiness course required for the Dairy Farming option in the Diploma in Business Management.
FORM A T: Lecture 1 hour

ANSC 0022.00: Equine Industry.
This course enables students to examine the structure of the equine industry and to discuss the issues, challenges, and opportunities facing the industry. Speakers from the equine industry are invited to discuss relevant topics, and students participate in the discussion and write summaries of the discussion.
NOTE: Full semester – This is a Workplace Readiness course required for the Equine Specialty option in the Diploma in Business Management.
FORM A T: Lecture 1 hour

ANSC 0112.02: Animal Biology and Management.
Students examine the biology of growth and development in companion animals, with a focus on care and management during breeding, parturition, growth, and location. Lectures cover the principles that are common to all species, and the labs and tutorial sessions focus on more specialized topics that are relevant to the management of bovine, equine, and other ruminant species.
NOTE: Full semester
FORM A T: Lecture 3 hours, lab 2 hours.

ANSC 0113.02: Principles of Animal Welfare & Husbandry.
Students examine the biological basis for animal behaviour, animal welfare, environmental physiology, and animal health. They also examine the role and importance of legislation and voluntary codes of practice in animal welfare and animal health. The course will enable the student to analyze and select handling practices, housing options, biosecurity, and disease prevention options that meet the needs of the animal and the enterprise. Lectures cover the principles that are common to all species, and the labs and tutorial sessions focus on more specialized topics that are relevant to the management of bovine, equine, and other ruminant species.
NOTE: Winter semester
FORM A T: Lecture 2 hours, lab 2 hours

ANSC 0114.02: Animal Feed and Nutrition Management.
Students examine in detail the biology of digestion and nutrient metabolism and the assessment of feedstuff quality in forage-based feeding systems. The course will enable the students to analyze strategies for meeting nutrient requirements and avoiding nutritional problems, and to assess feed efficiency and feed costs for the enterprise. Lectures cover the principles that are common to all species, and the labs and tutorial sessions focus on more specialized topics that are relevant to the management of bovine, equine, and other ruminant species.
NOTE: Winter semester
FORM A T: Lecture 3 hours, lab 2 hours

ANSC 0116.02: Companion Animal Enterprise.
This course will enable the student to oversee the routine care of animals in a companion animal facility and to develop some of the basic workplace communication skills necessary in such an enterprise. Students examine the structure of the companion animal industry and discuss the issues, challenges, and opportunities facing the industry. The basic care component covers mainly dogs and cats, with some coverage of other species, and a portion of this will be conducted outside class time. The industry overview component covers all species represented by the industry, as well as the different segments of the industry.
NOTE: Full semester
FORM A T: Lab 3 hours

ANSC 0117.02: Companion Animal Growth, Development, and Nutrition.
Students examine the biology of growth and development in companion animals and analyze the requirements for care and management throughout the life cycle. They also examine the biology of nutrition and the nutritional requirements throughout the life cycle, and relate this information to specific products, supplements, and feeding regimens. The course will enable the student to work with a nutritionist or veterinarian in establishing and implementing feeding and nutritional programs, and to interpret the legal and other limitations to providing foods and nutrition products and services for companion animals. The course covers mainly dogs and cats, with some coverage of other species.
NOTE: Full semester
FORM A T: Lab 3 hours

PREREQUISITE: ANSC 0018

ANSC 0204.02: Dairy Herd Health and Nutrition Management.
Students participate in an in-depth examination of the health and nutrition requirements of the individual dairy cow, and of the requirements for maintaining high standards of health and optimal nutrition in the dairy herd. The course will enable the students to use herd records and on-site evaluations to troubleshoot health and nutrition problems and to identify solutions to those problems. The course will also enable the student to use a variety of technical and human resources in meeting future challenges in health and nutrition.
NOTE: Winter semester
FORM A T: Lecture 3 hours, lab 2 hours

PREREQUISITE: ANSC 0012, ANSC 0013, ANSC 0014

ANSC 0205.02: Optimizing Bovine Reproductive and Genetic Performance.
This course is designed to provide an in-depth examination of bovine reproduction and the requirements for maintaining high success rates in herd detection and AI procedures. Students will use herd records and on-site evaluations to troubleshoot breeding problems and to identify solutions to those problems, and use a variety of technical and human resources in meeting future challenges in breeding management. In the other half of the course, students participate in an in-
PREREQUISITE: ANSC 0117

FORMAT: Lecture 3 hours, lab 2 hours.

NOTE: Fall semester

ANSC 0206.02: Managing Dairy Milking Systems and Housing Facilities.

Students examine in detail the management of the milking system and evaluate current and future options in milking systems technology. They also examine current and future options for housing and equipment, and analyze the ability of those options to meet the financial, environmental, and animal welfare goals of the operation. Tours and field trips give the students an opportunity to view a variety of housing and milking systems. Some of the tours or field trips may be conducted outside scheduled class time.

NOTE: Full semester

FORMAT: Lecture 3 hours, lab 2 hours.

PREREQUISITE: ANSC 0113

ANSC 0207.02: Records Management and Decision-making for Dairy Herds.

Students examine record-keeping options for dairy herds and use hard records to analyze key aspects of herd and farm performance. They also use case studies and records summaries to benchmark performance and to analyze the herd’s ability to meet its targets. Establishing and maintaining the records required to meet certification (e.g., HAACP) requirements are also integral components of the course.

NOTE: Winter semester

FORMAT: Lab 3 hours

PREREQUISITE: ANSC 0201, ANSC 0205

ANSC 0208.02: Biology and Care of Aquarium Fish and Reptiles.

Students examine the biology of growth and development in aquarium fish and reptilian species, and analyze the requirements for care and management throughout the life cycle, including the requirements for nutrition and health care. A considerable portion of the course is devoted to the selection and set-up of aquarium and terrarium systems and to troubleshooting problems. The course will enable the student to ensure high standards of health and nutrition for fish in aquarium systems and for reptiles.

NOTE: Winter semester

FORMAT: Lecture 3 hours, lab 2 hours. Offered in alternate years; next offered in 2015/2016.

PREREQUISITE: ANSC 0115

ANSC 0209.02: Biology and Care of Pet Birds and Small Mammals.

Students examine the biology of growth and development in avian and small animal species and analyze the requirements for care and management throughout the life cycle, including the requirements for nutrition and health care. The selection and setup of housing systems are important components of the course. The course will enable the student to ensure high standards of health, nutrition, and care for birds and small animals.

NOTE: Winter semester

FORMAT: Lecture 3 hours, lab 2 hours. Offered in alternate years; next offered in 2014/2015.

PREREQUISITE: ANSC 0116

ANSC 0210.02: Introduction to Companion Animal Health.

Students examine the causes and predisposing factors of diseases common to companion animals, and of the principles of disease management and prevention as they apply to companion animal facilities. The course will enable students to establish and implement biosecurity and health management protocols, and to interpret the legal and other limitations to providing health care products and services in consultation with the facility veterinarian. The course covers mainly dogs and cats, with some coverage of other species.

NOTE: Full semester

FORMAT: Lecture 3 hours, lab 2 hours.

PREREQUISITE: ANSC 0117

ANSC 0211.02: Companion Animal Facilities Management.

Students examine the biological and behavioral considerations important in designing companion animal housing and facilities, and explore the options available for ensuring high standards of animal welfare in the facility. The course will enable the student to design and implement protocols for managing the facility and for ensuring compliance with regulatory requirements or industry standards. Students participate in tours and field trips to view a variety of housing and facilities options. Some of the tours or field trips may be conducted outside scheduled class time. The course covers mainly canine and feline facilities, with some coverage of facilities for other species.

NOTE: Winter semester

FORMAT: Lecture 3 hours, lab 2 hours.

PREREQUISITE: ANSC 0116

ANSC 0212.02: Companion Animal Genetics and Reproduction.

Students examine the processes of reproduction and lactation in companion animals, and analyze the requirements for care and management during mating, parturition, and lactation. They also study the common breeds and the genetics of colour and conformation, and examine the requirements for choosing breeders and planning mating that meet the objectives of the breeding program. The course covers mainly dogs and cats, with some coverage of other species.

NOTE: Full semester

FORMAT: Lecture 3 hours, lab 2 hours.

PREREQUISITE: ANSC 0116

ANSC 0213.02: Equine Growth and Nutrition.

Students will study the physiological growth and development at every life stage from conception to old age in the horse. The nutrition component focuses on the digestive system of the horse and the requirements for specific nutrients at different stages of growth and development. Analysis of different types of feeds and the formulation of diets based on life stage and level of activity will be conducted. The course will enable the student to troubleshoot nutrition problems in a variety of equine enterprise types.

NOTE: Full semester

FORMAT: Lecture 3 hours, lab 2 hours.

PREREQUISITE: ANSC 0113, ANSC 0114

ANSC 0214.02: Equine Health, Genetics, and Reproduction.

Students examine in detail the processes of reproduction and lactation in horses, as well as the requirements for care and management of the mare during breeding, parturition, and lactation. They also study the growth and development of the foal and the requirements for the care of the foal. The common breeds of horses and the genetics of coat colour, conformation, and performance potential will be discussed. The course will enable students to evaluate the genetic merit of sires and dams, and to plan matings and genetics strategies to meet the genetic goals of their particular operation. Students will obtain a basic knowledge of animal health care and disease prevention, and be able to address issues related to biosecurity.

NOTE: Full semester

FORMAT: Lecture 3 hours, lab 2 hours.

PREREQUISITE: ANSC 0113, ANSC 0114

CROSS-LISTING: ANSC 2006

ANSC 0215.02: Equine Facilities Management.

Students examine the behavioral and environmental considerations important in designing an equine facility, and explore the options available for ensuring high standards of animal welfare in the facility. The course will enable students to design and implement protocols for managing the facility and for ensuring compliance with regulatory requirements or industry standards. Students participate in tours to view a variety of facility options. Some of these tours may be conducted outside scheduled class time.

NOTE: Winter semester

FORMAT: Lecture 3 hours, lab 2 hours.

PREREQUISITE: ANSC 0213, ANSC 0214

ANSC 0216.02: Equine Health and Fitness.

Students examine the anatomy and physiology of the horse with special attention to the respiratory, skeletal, muscular, and cardiovascular systems. The course will enable students to analyze how the horse’s health and soundness is affected by its environment, level of fitness, and condition.

NOTE: Winter semester

FORMAT: Lecture 3 hours, lab 2 hours.

PREREQUISITE: ANSC 0213

Animal Science 67
ANSC 0217.02: Companion Animal Behaviour.

In this course, students will study the fundamentals of animal learning and how these principles affect success in training and behaviour modification. Attention will be given to understanding and solving behaviour problems (e.g., separation anxiety, dominance aggression, fighting, inappropriate urination, and behavioural stereotypes). The focus is on companion animals – dogs and cats, and to some extent horses. The normal development of behaviour in those species will be covered.

NOTE: Winter semester
FORMA T: Lecture 3 hours.
CROSS-LISTING: ANSC 2003

ANSC 0218.02: Beef Production and Management.
This course will focus on the management of commercial beef farms ranging from cow-calf to steer-feeder operations. Components of breeding, nutrition, and behaviour will be discussed. A systems approach to the management of the farm will be undertaken. The role of the manager in optimizing production is an important component. A historical perspective on the Atlantic beef industry along with coverage of emerging trends will be part of the course. Key beef industry issues such as the impact of BSE, animal welfare, and beef marketing will be discussed.

NOTE: Fall semester
FORMA T: Lecture 3 hours, lab 2 hours.
PREREQUISITE: ANSC 0114
CROSS-LISTING: ANSC 2007

ANSC 0219.02: Equine Behaviour and Learning.
This course explores the evolution of the horse and the history of equine domestication. Equine behaviour in both the feral and domesticated horse will be examined, and students will learn how understanding equine body language has practical applications within current training and husbandry practices. Type and causation of various abnormal equine behaviours and methods of behavioural rehabilitation will be covered. Students will examine equine perception and principles of learning, and how application of these principles can improve training and behaviour. Students will also study the human horse relationship.

NOTE: Winter semester
FORMA T: Lecture 3 hours.
PREREQUISITE: ANSC 0113

Applied Science

I. Undergraduate Degree Level Course Descriptions

APSC 1000.03: Computer Aided Graphics and Projection.

This is an introductory course to familiarize students with common metal construction technologies, machines, and tools used in a metal fabrication shop. The principles of welding and welding applications will be emphasized. Students will be required to present seminars on various fabrication techniques and construction tools. Occupational Health and Safety issues pertaining to metal shop work procedures will be covered.

NOTE: Winter semester
FORMA T: Lecture 2 hours, lab 3 hours

APSC 1004.03: Wood Construction Technology I.

This is an introductory course in the selection, operation, and maintenance of woodworking hand and power tools. The principles of selection, operation, and maintenance of workshop tools in the modern woodworking shop are studied. Students will be required to present seminars on various fabrication techniques and construction tools. Occupational Health and Safety issues pertaining to wood shop work procedures will be covered.

NOTE: Winter semester
FORMA T: Lecture 2 hours, lab 3 hours

APSC 1005.03: Metal Construction Technology I.

This is an introductory course for familiarizing students with common metal construction technologies, machines, and tools used in a metal fabrication shop. The principles of welding and welding applications will be emphasized. Students will be required to present demonstrations on the use of various metal hand and power tools, as well as present a seminar on some form of metal fabrication technology. Occupational Health and Safety issues pertaining to metal shop work procedures will be covered.

NOTE: Full semester
FORMA T: Lecture 2 hours, lab 3 hours

APSC 2000.03: Environmental Impacts and Resource Management (A).

This course is an introduction to environmental engineering and technology, emphasizing a quantitative-engineering approach. The course addresses the issues associated with the sole and ecologically appropriate handling, processing, storage, and utilization of organic wastes arising from human activities, including agricultural and bio-resource production systems. Topics covered will include: growth models for populations of living organisms, as well as models for depletion and replenishment of natural resources; the concept of mass and energy balances applied to quantity changes in environmental systems; physical, chemical, and biological unit operations for treatment and reduction of solid,
liquid, and gaseous wastes; and reduction of pollution impacts on air and water resources.

NOTE: Full semester
FORMA T: Lecture 3 hours, lab 3 hours.
PREREQUISITE: ENGN 1002, CHMA 1001

This course is an introduction to the concept of systems theory and analysis. The emphasis will be on the use of systems principles to plan, design, construct, and operate systems. Students will be exposed to case studies and special lectures focusing on bioresource systems and analysis as an integrated problem-solving tool. Real-world systems will be examined through field tours and guest speakers. New faculty will give case studies in their areas of expertise.

NOTE: Full semester
FORMA T: Lecture 3 hours, lab 3 hours.

Principles necessary for understanding and providing optimal aquatic environments for aquaculture production are reviewed. Topics in water habitat management will be emphasized, including: water properties of both fresh- and salt-water systems; water quality and recirculating systems; methods of dissolved oxygen and removal of metabolic wastes in aquaculture rearing systems; and evaluation of water resource requirements for aquaculture.

NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

APSC 2007.03: Fluid Power Technology.
This course covers the subjects essential to understanding the design, analysis, operation, and maintenance of fluid power systems: hydraulic, pneumatic, and water. Emphasis is placed on the practical applications of fluid power and the functioning of system components such as reservoirs, pumps, compressors, motors, valves, filters, lines, and hoses, and mechanical and electrical controls in typical fluid power circuits. The principles of fluid flow, pressure and force, energy conservation, and power in the context of using fluid energy to do useful mechanical work are covered. Theory is presented to emphasize how and why fluid power systems operate. General maintenance, safety, and environmental issues associated with fluid power systems are also discussed.

NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

This course covers the theory and applications of digital electronics technology and the control of digital devices by computers and programmable logic controllers (PLCs). Digital technology is becoming the dominant method of communication, control, sensing, computation, and communication in modern society. This course will provide the foundation to better understand current and future digital systems. Digital logic circuits, data forms, and applications are studied. Complete in the laboratory are used to interface with and control a variety of digital devices such as computers, robots, cameras, scanners, lab equipment, etc. Students are introduced to Visual Basic programming interfacing with computer ports and sensors input devices. Hands-on projects are completed to control real-world applications such as traffic lights, process control and experimentation equipment.

NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

APSC 2009.03: Metal Construction Technology II.
This is an advanced course in metal construction technologies using power machines (including CNC) and tools used in a metal fabrication shop. Advanced principles of welding and welding applications will be emphasized. Students will be required to present demonstrations on the use of various power machines, and to design and construct major metal projects using the skills learned in both Metal Construction Technology courses.

NOTE: Winter semester
FORMA T: Lecture 2 hours, lab 3 hours.
PREREQUISITE: ENGN 1003

APSC 2010.03: Wood Construction Technology II.
An advanced course in the operation and maintenance of woodworking hand and power tools, and joinery machinery. Students will learn about specialized machinery and advanced joinery technologies. The operation, maintenance, and repair of woodworking tools in the modern woodworking shop are studied, with emphasis on troubleshooting and setting up for accessibility and speed. Written work safety procedures will be reviewed. Individual projects are undertaken by students with the skills acquired in both Wood Construction Technology courses, utilizing the shop equipment.

NOTE: Fall semester
FORMA T: Lecture 2 hours, lab 3 hours.
PREREQUISITE: ENGN 1004

APSC 2011.03: Technology for Precision Agriculture.
This course will provide students with a fundamental understanding of the concepts and principles of precision agriculture. This includes the technology and use of electronic machines, sensor instrumentation, computer equipment, and machine controllers. Nutrient management systems, applications of GPS-based surveys, precision farming software (e.g., SSISoftware), geographic information systems (GIS), software utilization, and GPS hardware are examined.

NOTE: Fall semester
FORMA T: Lecture 3 hours, lab 3 hours.

APSC 2012.03: Introduction to Bioreource Science (A).
This course is an introduction to environmental science and engineering technology with a specific focus on agriculture, and consists of ENGN 2000-2002 lectures plus additional weekly tutorials and labs by the Engineering department. This combination provides an efficient means to provide the environmental science and the applied management of resources. The course is designed to provide an introduction to horizon topics in this rapidly developing field that are the subjects of specialized, upper-level courses available in the program, and it provides a solid foundation for some environmental science courses. Topics to be covered include: overviews of green-celler jobs and the new biorecources economy, and of sustainable agrosystem management; introductions to the management of sustainable water and energy resources, including alternative waste water, biosolids, and bioregulatory introductions to materials; life-sourcing, geographic information systems and precision agriculture.

NOTE: Full semester
FORMA T: Lecture 3 hours, lab 3 hours.
PREREQUISITE: ENGN 1002, CHMA 1001
EXCLUSION: Students can receive credit for either ENGN2012 or ENV A2000, but not both.

APSC 2013.03: Machinery and Building Technology (A).
Two key areas to the success of utilizing biomaterials are selection of appropriate machines and designing effective facilities to manage the production/processng system. In the first half of the course, students are introduced to the types of equipment, their productivity, and methods of selection for efficient operation. This will include machinery for soil preparation, planting, crop care, and harvesting. The machinery and their operation are analyzed with respect to functions, work rates, material flow and power usage. The importance of monitoring machine performance and its effect upon work quality and environmental effects of machine operation will be studied. The labs will emphasize safety, basic machinery maintenance, adjustment, calibration and performance testing. The second half of the course provides an introduction to the planning process of structures and various topics related to the use of building materials, particularly "green" materials. Functional layouts and valuation principles of storage and production buildings are considered. Field trips supplement the lecture material. A term paper is required.

NOTE: Full semester
FORMA T: Lecture 3 hours, lab 3 hours.
CROSS-LISTING: ENGN 2003

APSC 3001.03: Electrotechnology (A).
Electricity is integral to our society, and this course reviews application of AC and DC electricity. Safety and measurements are practiced during hands-on lab sessions. Common sensors, measurement and control systems are discussed and applied to improve energy management.

NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.
PREREQUISITE: PHYS 1000 or PHYS 1002

APSC 3013.03: Aquacultural Systems Technology (A).
Support facilities, equipment, and systems for aquatic production will be examined. Topics include: structures for confinement, protection, and growth of aquaculture species; principles of design and selection of equipment for rearing systems for aquatic animals.
70 Applied Science

APSC 3015.03: Irrigation and Drainage.
This course examines basic soil/water/plant/atmosphere relationships. It introduces students to soil and water conservation and management principles. The course covers irrigation and drainage of golf courses, athletic areas, parks, and residential landscapes.
NOTE: Winter semester.
FORMAT: Lecture 3 hours, lab 3 hours.
NOTE: Winter semester. Offered in alternate years; next offered in 2015/2016.
EXCLUSION: Students who have credit for ENGN 3015 may not take ENGN 3015 for credit.

APSC 3018.03: Technology Modules.
This course deals with the operating concepts of CNC machines, plastic forming and construction technology, and transportation technology in a modular format. Approximately 4 weeks will be allocated to the study of each module area. The students will be able to perform operations in each technology area upon completion of the appropriate module. Practical hands-on laboratory and shop experiences are emphasized, as are associated aspects of Occupational Health and Safety. Students will also make presentations to the class regarding specific features and operations of the technologies studied.
NOTE: Winter semester.
FORMAT: Lecture 5 hours.

APSC 3019.03: Communications Technology.
This course addresses issues, systems, and technology in computer-related communications technology. Among the topics studied are desktop publishing, digital photography and image editing, video production, web page design, and presentation software usage. Supplementary classes in graphic design and screen printing will be available as time allows. Emphasis is placed on practical production techniques and individual design situations.
NOTE: Full semester.
FORMAT: Lecture 3 hours, lab 2 hours.

APSC 3020.03: Energy Production and Utilization.
This lecture-based course provides an overview of the whole energy system, focusing on selected attributes of energy. The assessment, management and remediation of energy production is a global issue, which will ultimately impact all walks of life, business, industry and infrastructure. It includes an overview of the energy supply chain, transmission and distribution systems, energy use, energy policy and the environment and methods of generation. It also includes an overview of renewable energy assessment techniques and feasibility tools.
NOTE: Full semester.
FORMAT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: PHYS 1000 or PHYS 1002.

APSC 4001.03: Water Quality Issues (A).
Current environmental water quality issues such as contamination of surface and groundwater are discussed. Emphasis is placed on providing solutions to the water quality problems. Agricultural water quality models will also be examined.
NOTE: Winter semester.
FORMAT: Lecture 3 hours. Offered in alternate years; next offered in 2015/2016.

APSC 4003.03: Energy Conversion and Assessment (A).
This lecture-based course focuses on selected attributes of existing and renewable energy options, including the reservoir and consumption of oil, coal and gas; fossil energy technologies for power generation; fundamental principles; applications and issues of solar energy, biomass energy, wind-energy and hydro-power; and outlook and evaluation of renewable energy.
NOTE: Winter semester.
FORMAT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: APSC 3020.

APSC 4005.03: Waterscape Ecology and Management (A).
This lecture-based, non-quantitative course focuses on selected basic attributes of land-water interactions and aquatic degradation as they relate to issues of watershed and waterbody development in rural and urban environments. The course provides an introduction to a variety of aquatic principles and how they in turn are influenced by human activity, followed by an introduction to and review of the many management options available to land-use planners to mitigate development pressures. Broad latitude will be permitted in the subject areas of the assignments in order to appeal to individuals’ interests and career aspirations in environmental engineering, environmental science, horticulture, international development, and environmental governance and sociology.
NOTE: Winter semester.
FORMAT: Lecture 2 hours, lab 3 hours.

APSC 4006.03: Wastewater Management (A).
This course covers an overview of sources of water pollution, particularly in the NOE to fresh water and estuarine ecosystems. Laboratory-oriented approaches such as wetlands and filters will be discussed. Laboratory sessions will include field trips, methods of sampling, and some testing of water.
NOTE: Fall semester - Environmental Sciences.
FORMAT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: At least third-year standing.

II. Technology Level Course Descriptions

APSC 0100.02: Surveying.
An introduction to surveying principles and recording techniques. Topics are given lectures and assignments to assist in understanding the principles employed in surveying, and they practise these during the labs by conducting various surveying exercises. Practice is gained in the proper use of surveying instruments (tapes, level, and transit) through exercises involving measurements of horizontal and vertical distances and angles. These include chaining, stadia, benchmark, profile and contour leveling, triangulation and traverse exercises, and construction surveying, with emphasis on their application to farm construction projects.
NOTE: Full semester.
FORMAT: Lecture 2 hours, lab 3 hours.

APSC 0101.02: Horticultural Technology.
Small gasoline engine structure and operating theory are studied, with emphasis on engine maintenance and troubleshooting. This course includes basic hydraulic theory, emphasizing the operation of common systems in use today. A wide range of horticultural machinery is studied, as well as the principles of mixing, placing, and curing concrete, fence making, and chain saw operation.
NOTE: Winter semester.
FORMAT: Lecture 2 hours, lab 3 hours.

APSC 0200.02: Environmental Management.
Students examine the major environmental issues and risks in agricultural production. The emphasis is on how agricultural activities impact the environment and how environmental issues, regulations, and programs impact the way agricultural activities are carried out. The course will enable students to identify the legal and other requirements for reducing the environmental risks associated with production activities, and to work with an environmental specialist in determining ways to minimize environmental risk.
NOTE: Full semester.
FORMAT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: NOE 4008.

APSC 0201.02: Machinery and Building Technology.
Two keys to the success of utilizing horticultural products are the selection of appropriate machines and designing effective facilities to manage the production-processing system. In the first half of the course, students are introduced to the types of equipment, their productivity, and methods of selection for efficient operation. This will include machinery for soil preparation, planting, crop care, and harvesting. The machines and their unit operation are analyzed with respect to functions, work rate, material flow and power usage. The importance of monitoring machine performance relating to work quality and environmental effects of machine operation will be studied. The labs will emphasize safety, basic maintenance, adjustment, calibration and performance testing. The second half of the course provides an introduction to the planning process of structures and various topics related to the use of building materials, particularly green materials. Functional layouts, ventilation principles of storage, and production buildings are considered. Field trips supplement the lecture material. A term paper is required.
NOTE: Full semester.
FORMAT: Lecture 3 hours, lab 3 hours.
CROSS-LISTING: ENGN 2013.
Aquaculture

I. Undergraduate Degree Level Course Descriptions

AQUA 2000.03: Introduction to Aquaculture (A).
The history and the current status of world aquaculture production are discussed, with emphasis on species with potential in Atlantic Canada. Advances in freshwater or marine finfish and shellfish culture are included. Aquatic plant production is discussed. Business aspects of aquaculture are introduced. The course includes field trips to aquaculture and related facilities.
NOTE: Fall semester
FORMAT: Lecture 3 hours, lab 3 hours.

AQUA 3000.03: Fish Health (A).
This course outlines concepts of disease with special reference to fish. Diseases of various etiological types are considered, with emphasis on those in the aquaculture environment. The relationships of management and economics to disease in cultured fish are detailed, and public health concerns are addressed. Diagnostic, prophylactic, and treatment methods are outlined and practiced.
NOTE: Winter semester
FORMAT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: Preparatory: BIOA 3005

AQUA 4000.03: Finfish Production.
Aspects of breeding and genetics, fish management, financial management, economics, marketing, housing systems, and water management are presented in an integrated approach to provide a sound understanding of this aspect of aquaculture. Management of fish throughout the life cycle is presented. The course includes a weekend field trip to commercial farms; attendance is obligatory.
NOTE: Fall semester
FORMAT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: NUTR 3000 or NUTR 3002, AQUA 3000, BIOA 3005

AQUA 4001.03: Shellfish Production.
Factors affecting profitable production of shellfish are discussed in the context of developing a sound industry with potential to address future opportunities. A survey of culture techniques used in shellfish production is undertaken.
NOTE: Winter semester
FORMAT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: NUTR 3000 or NUTR 3001, AQUA 3000, BIOA 3005

Art

I. Undergraduate Degree Level Course Description

This course will provide an introduction to the history of art forms depicting landscape, with the major focus being on landscape painting. The course will consist of art history lectures and a studio component in which drawing techniques, collage, and colour theory will be explored. Students will develop skills in composition and will gain an increased appreciation for landscape art traditions.
NOTE: Fall semester
FORMAT: Lecture/studio 3 hours per week.
Biology

Below are courses offered in Biology by the Faculty of Agriculture. Please see the Biology Section in the Faculty of Science for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

BIOA 1002.03: Biology I.
This is the first of a two-semester course sequence exploring various general principles common to the biological sciences. The biological significance of cell structure and function, metabolism, the cell cycle, sexual reproduction, Mendelian genetics and basic gene structure are among the topics to be considered in the lecture sessions. The labs reinforce and enhance the learning of selected topics discussed in the lectures. NOTE: Fall semester
FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 1003.03: Biology II.
This is the second of a two-semester course sequence exploring various general principles common to the biological sciences. In addition to evolutionary processes and patterns, the fundamental systematics and diversity of procaryotes, protists, plants, fungi and animals are emphasized in the lecture sessions. The laboratory continues to reinforce and enhance the learning of selected topics discussed in the lectures. NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 2000.03: Cell Biology.
An introduction to cell biology. Topics include cell metabolism, the structure and function of organelles of the eucaryotic cell, cell growth, cell movement, and the function of organelles of the procaryotic cell. Specialized cell functions will also be discussed. NOTE: Fall semester
FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 2001.03: Cell Biology Laboratory.
This course complements the lectures of BIOA 2000 with a laboratory section. Students will participate fully in BIOA 2000 and, as well, complete laboratory sessions to complement lecture material. Students may receive credit for either BIOA 2000 or BIOA 2001, but not both. NOTE: Full semester
FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 2002.03: Plant Physiology.
A study of the different functions of the plants, including growth, photosynthesis, mineral nutrition, water relations and translocation of solutes, and plant orientation, development, and reproduction. NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 2004.03: Structural Botany.
The basic morphology and anatomy of the seed plants are presented from a developmental perspective. The structural aspects of the various modes of plant reproduction are also included. Emphasis is placed on obtaining an understanding of plant structure that will complement crop physiology, weed biology, and plant pathology. NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

This course deals with the principles of plant pathology and the control of diseases caused by bacteria, fungi, mycoplasma-like organisms, viruses, and nematodes. Labs deal with basic techniques used in plant pathology, such as fungal, bacterial, and nematode isolation, identification, and inoculation. NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 2006.03: Mammalian Physiology.
An introduction to the body systems and how they function. The student should develop a basic understanding of physiological processes and how they are regulated and integrated by the nervous and endocrine systems. Topics covered include: haematology, the nervous, muscular, endocrine, cardiovascular, respiratory, renal, and digestive systems, and an introduction to environmental physiology. NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 2007.03: Mycology.
An introduction to the fungi, including members of the Kingdom Fungi and Chytridomycota, and the protozoan pseudofungi. The labs in this course will focus on classification of the fungus, but lecture topics will also include fungal physiology, genetics, ecology, industrial mycology, food spoilage, and medical mycology. Students will be required to submit a microbiology collection and a mushroom collection. NOTE: Fall semester
FORMA T: Lecture 3 hours, lab 3 hours. Offered in alternate years; next offered in 2015/2016.

BIOA 2008.03: Plant Diversity.
This course emphasizes the biology, evolution, and diversification of the major phyla of the Kingdom Plantae. The lectures illustrate the fundamental reproductive unity underlying the diversity of all land plants, using examples from both fossil and living species. In addition to exploring the major plant groups and their subdivisions in the laboratory, students learn to use the appropriate resources to identify specific plants. NOTE: Fall semester
FORMA T: Lecture 3 hours, lab 2 hours.

BIOA 3000.03: General Entomology (A).
An introduction to the science of entomology from an agricultural perspective. Insect anatomy, physiology, and taxonomy are considered, also included are discussions on insect behaviour, reproduction, life cycles, and population ecology. Basics of monitoring techniques and population dynamics are illustrated. Students will be required to prepare and submit an insect collection. NOTE: Full semester
FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 3001.03: Ecology.
An introduction to the principles and general concepts of ecosystem structure and function is presented. The dynamics of populations and community interactions are considered in relation to various biotic and abiotic environmental influences. The laboratory sciencens topics covered in the lectures and readings by emphasizing the importance of field observation and interpretation. NOTE: Full semester
FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 3002.03: Weed Science (A).
This course deals with the principles of weed science. Included are discussions on weed recognition, and chemical and non-chemical approaches to controlling weeds in various agricultural crops and in lawns and non-crop areas. The selection, safe use, handling, and storage of herbicides are stressed, along with the environmental impact of the different methods of weed control. NOTE: Full semester
FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 3003.03: Insect Behavior (A).
This course deals with the principles of insect behavior. Topics include insect behavior, reproduction, life cycles, and population ecology. Basics of monitoring techniques and population dynamics are illustrated. Students will be required to prepare and submit an insect collection. NOTE: Full semester
FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 3004.03: Structural Botany.
The basic morphology and anatomy of the seed plants are presented from a developmental perspective. The structural aspects of the various modes of plant reproduction are also included. Emphasis is placed on obtaining an understanding...
BIOA 3003.03: Comparative Vertebrate Anatomy.

An introduction to comparative anatomy. Emphasis is placed on analyzing vertebrate structure. Comparisons of form and function within the Vertebrae are discussed with an evolutionary perspective. This is supplemented in the laboratory by detailed dissections of representative vertebrates.

NOTE: Fall semester

FORMA T: Lecture 3 hours, lab 3 hours. Offered in alternate years; last offered in 2010-2011.

PREREQUISITE: BIOA 1003

BIOA 3004.03: Environmental Physiology (A).

A study of animals in relation to their environment. The influence of environmental factors on body processes and their relationship to productive efficiency and animal well-being are examined. Major topics include temperature regulation and body homeostasis, biological rhythms, photoperiodism, and environmental and hormonal interrelationships.

NOTE: Fall semester

FORMA T: Lecture 3 hours, lab 2 hours. Offered in alternate years; last offered in 2010-2011.

PREREQUISITE: BIOA 2006 or BIOA 3005

BIOA 3005.03: Physiology of Aquatic Animals (A).

The form, function, physiological integration, and behavior of major types of aquatic animals is considered. Emphasis is placed on Classes of organisms, using commercially important species as primary examples.

NOTE: Fall semester

FORMA T: Lecture 3 hours, lab 3 hours.

PREREQUISITE: BIOA 1003

BIOA 3006.03: Aquatic Ecology.

The biology of aquatic species in marine and freshwater environments is discussed, with emphasis on biological systems involving farmed species, and organism interdependencies and interactions are examined. An introduction to the principles of ecology at the community and ecosystem level of integration is included.

NOTE: Fall semester

FORMA T: Lecture 3 hours, lab 3 hours.

PREREQUISITE: BIOA 1003

BIOA 3008.03: Growth, Reproduction and Lactation (A).

A continuation of BIOA 3006, emphasizing physiological systems relevant to animal production. Major topics include growth and development as it applies to meat and brood animal production, and the physiology and management of reproduction and lactation in domestic species.

NOTE: Fall semester

FORMA T: Lecture 3 hours, lab 2 hours.

PREREQUISITE: BIOA 2006

BIOA 4000.03: Avian Biology (A).

This course is a study of topics in biology of special relevance to the commercial use of avian species. Physiological, biochemical, and genetic control and manipulation of such processes as reproduction, growth and development, and immunity are examined.

NOTE: Fall semester

FORMA T: Lecture 3 hours, lab 2 hours. Offered in alternate years; last offered in 2010-2011.

PREREQUISITE: ANSC 2005, CHMA 3001 (or CHMA 2005), GENE 2000

BIOA 4002.03: Conservation Biology.

This course has limited enrollment. This course will examine the ecological concepts underlying current issues in conservation biology. Topics covered include effects of agricultural habitat fragmentation on wildlife, conservation of biodiversity, stability and resilience of ecosystems, optimal design of nature reserves, and habitat heterogeneity. This is a discussion-style course concentrating on current published scientific papers chosen by the students. Students will also learn to read and critically evaluate scientific papers, and to apply this ability to writing literature reviews.

NOTE: Winter semester

FORMA T: Lecture 3 hours.

PREREQUISITE: 60 credit hours

BIOA 4003.03: Plant-Microbe Interactions.

This course is an advanced study of the interactions between plants and microorganisms, with emphasis on plant pathogenic micro-organisms but including symbiotic and other microorganisms that can provide a benefit to the plant. Students will study the biology of the infection process in relation to plant disease and symbiosis, and the impact that infection has on the physiology of the host. Responses of the plant to infection will be studied, with emphasis on Systemic Acquired Resistance and Induced Systemic Resistance.

NOTE: Fall semester

FORMA T: Lecture 3 hours, tutorial 2 hours per week.

PREREQUISITE: BIOA 3005. 45 credit hours

BIOA 4004.03: Animal Adaptation and Stress.

This is an advanced-level course in the comparative physiology of animal adaptation and stress. The concepts of allostatic, homeostasis and the physiological stress response will be reviewed, and the role of endocrine regulation in animal adaptation under changing external (environmental) and internal (life-history) demands will be discussed. Special emphasis will be placed on mammalian and avian adaptation in response to changes in the internal, physical, and social environments. Species discussed may include livestock, companion and zoo animals, and wildlife.

NOTE: Fall semester

FORMA T: Lecture 3 hours, lab 2 hours. Offered in alternate years; last offered in 2013-2014.

PREREQUISITE: At least third-year standing prerequisite: BIOA 3004

II. Technology Level Course Descriptions

BIOA 0101.02: Plant Pathology.

This course deals with the diagnosis of plant diseases caused by fungi, bacteria, phytoplasmas, viruses, and nematodes. Students will develop skills to differentiate plant diseases caused by microorganisms from those caused by abiotic factors. Principles of plant disease management will be covered. Labs deal with basic techniques used in plant pathology, such as fungal, bacterial, and nematode isolation, identification, and inoculation.

NOTE: Winter semester

FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 0102.02: Plant Physiology and Stress Management.

This course is aimed at gaining an insight into various plant physiological, growth, and developmental processes and to develop a fundamental understanding and appreciation as to how various environmental factors influence growth, differentiation, and developmental processes in plants. The course also examines the impact of various abiotic stresses on plant growth and development, yield, and productivity, including acclimation and adaptation techniques. Plant diagnosis will be emphasized.

NOTE: Winter semester

FORMA T: Lecture 3 hours, lab 2 hours.

BIOA 0103.02: Weed Science.

This course deals with the principles of weed science. Included are discussions on weed recognition, and chemical and non-chemical approaches to controlling weeds in various agricultural crops and in lawns and non-crop areas. Selection, site use, handling, and storage of herbicides are stressed.

NOTE: Winter semester

FORMA T: Lecture 3 hours, lab 3 hours.

BIOA 0200.02: Entomology.

An introduction to the study of the phylum Arthropoda, with particular reference to the class Hexapoda (Insects), emphasizing insect pests of the northeast. Anatomy, physiology, taxonomy, behavior, and ecology of insects are considered during lectures and laboratory work. Discussions on the relationship of insects to humans, basics of insect control methods, and pesticidal utility are included. Students will be required to prepare and submit an insect collection.

NOTE: Full semester

FORMA T: Lecture 2 hours, lab 2 hours
Chemistry

Below are courses offered in Chemistry by the Faculty of Agriculture. Please see the Chemistry Section in the Faculty of Science for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

CHMA 0050.00: Preparatory Chemistry.
This non-credit course is designed for students who satisfy all other requirements for admission but lack the Grade 12 Chemistry course. The course will cover the basic material necessary for entrance into CHMA 1000, including review of the periodic table, nomenclature, chemical reactions, aqueous solutions, chemical bonding, and other topics as determined by a review of the class. CHMA 0050 is not intended to duplicate or replace Grade 12 Chemistry.
NOTE: Fall and Winter semesters
FORMA T: Lecture 3 hours, lab 3 hours.
PREREQUISITE: Approval of the Registrar.

CHMA 1000.03: General Chemistry I.
This course is designed to help students understand chemical equations, reactions, and calculations. The chemistry of natures media is highlighted (properties of water, ionization of weak electrolytes, buffers). In addition to the traditional classroom instruction, students will be exposed to problem-based learning and cooperative learning. Students will learn the proper use of various analytical equipment and apparatus. The laboratory work will focus on the development of practical lab skills applicable to the agricultural and environmental industries.
NOTE: Fall semester
FORMA T: Lecture 3 hours, lab 3 hours.
PREREQUISITE: Successful completion of academic Grade 12 Chemistry or equivalent.

CHMA 1001.03: General Chemistry II.
This second semester of General Chemistry will include a theoretical understanding of atomic and molecular structures. An understanding of physical equilibrium will be extended to practical applications of chromatographic analysis.
NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

CHMA 2000.03: Organic Chemistry I.
This course provides an introduction to the structure and reactions of organic compounds. The course is approached from a mechanistic point of view and has particular emphasis on appropriate spectroscopy (IR and NMR). The topics covered in this course include chemical bonding, isomerism, acid-base properties and the isolation and purification of organic compounds. The classes of organic compounds covered will include alkanes, alkynes, simple aromatics, and related compounds. Laboratory work will include introductory techniques of organic chemistry and both HPLC and gas chromatography.
NOTE: Fall semester
FORMA T: Lecture 3 hours, tutorial 1 hour, lab 3 hours.
PREREQUISITE: CHMA 1001.

CHMA 2001.03: Organic Chemistry II.
This course builds on work begun in CHMA 2000. Functional groups included here will be carbonyls (aldehydes, ketones, acids, and their derivatives), more complex aromatics, simple organometallics, and bifunctional organic compounds. The emphasis on mechanistic chemistry will continue, as will the study of appropriate spectroscopy (MSR and UV-Vis). In addition, an introduction to organic synthesis and biomolecular will be undertaken.
NOTE: Winter semester
FORMA T: Lecture 3 hours. Offered in alternate years; next offered in 2015/2016.

CHMA 2003.03: Food Chemistry I (A).
An introductory study of the chemistry of food and food components. The emphasis will be on water, fats, proteins, and carbohydrates (and related compounds) with an overview of vitamins, minerals, and additives. Methods of analysis will be discussed in detail and this will be augmented by hands-on laboratory experience with these analytical procedures.
NOTE: Fall semester
FORMA T: Lecture 3 hours, lab 3 hours.
EXCLUSION: This course may not be taken for credit by students who have credit for CHMA2004.

CHMA 2004.03: Introductory Food Chemistry (A).
An introductory study of the chemistry of food and food components. The emphasis will be on water, fats, proteins, and carbohydrates (and related compounds) with an overview of vitamins, minerals, and additives. Methods used for analysis of food components will be discussed in detail.
NOTE: Fall semester
FORMA T: Lecture 3 hours.
EXCLUSION: This course may not be taken for credit by students who have credit for CHMA2004.

CHMA 3001.03: Biochemistry.
The major focus of this course will be on the biochemical pathways and activities that account for the assimilation, transformation, degradation, and synthesis of the major macromolecules in living cells. These molecules include proteins, lipids, carbohydrates, RNA and DNA. Catalytic and regulatory strategies used by living cells will also be discussed. The final topic will be to examine and understand how metabolites consist of highly interconnected biochemical pathways.
NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

CHMA 3003.03: Advanced Integrated Chemistry Laboratory.
The course will cover advanced laboratory topics in the fields of inorganic, general, and organic chemistry. Whenever possible these topics will be chosen from the fields of environmental science or agriculture. In particular, the use of spectroscopic techniques for the identification of chemical compounds will be applied, where appropriate.
NOTE: Fall semester
FORMA T: Lab 4 hours. Offered in alternate years; next offered in 2015/2016.

CHMA 3006.03: Mammalian Biochemistry.
A study of the application of basic biochemical principles to the molecular functions of the diverse mammalian organ systems. The subject matter is divided into three parts: Body Fluids and Their Constituents, which includes such subjects as blood composition, the complement system, the immune system, and their control; Specialized Tissues, such as connective tissue, nervous tissue, and muscle tissue; and Biochemistry of the Endocrine System, with the focus on the principles of endocrine biochemistry and the mechanisms of hormone action. The topics covered include general principles and mechanisms of hormone action, prostaglandins, the thyroid gland, and the gonads, as well as the hypothalamus, hypophysis, and adrenals.
NOTE: Winter semester
FORMA T: Lecture 3 hours.

CHMA 3007.03: Food Chemistry II (A).
This course, which builds on CHMA 2003 (or CHMA 2004), will provide an in-depth study of major food components including vitamins, colorants (natural and artificial), nomenclature, and textural agents. Identical or different interactions between food components will be examined (Maillard, caramelization, rancidity, and enzymatic reactions). Recent advances in processing technology will be introduced.
NOTE: Winter semester. Note: This course may not be taken for credit by students who have credit for CHMA2004.
FORMA T: Lecture 3 hours, lab 3 hours. Offered in alternate years; next offered in 2015/2016.
CHMA 3008.03: Intermediate Food Chemistry (A).
This course, which builds on CHMA 2001 (or CHMA 2004), will provide an in-depth study of selected food components including vitamins, colorants (natural and artificial), microorganisms and natural agents. Beneficial and/or deleterious interactions between food components will be examined (Maillard, communication, toxicity, and enzymatic reactions). Recent advances in processing technology will be introduced as time permits. 
NOTE: Winter semester
FORMAT: Lecture 3 hours. Offered in alternate years; next offered in 2015/2016.
PREREQUISITE: CHMA 2003 or CHMA 2004
EXCLUSION: This course may not be taken for credit by students who have credit for CHMA 3007.

CHMA 3009.03: Environmental Chemistry.
In this course students will undertake an in-depth study of the chemical processes involved in the pollution of the environment. Chemical pollution of the atmosphere, hydro sphere, and lithosphere will each be studied in depth. In each case, chemical solutions to these problems will be considered. Chemical processes such as dissolution, coordination, ion exchanges, hydrolysis, ionization, and freezing point depression will be covered.
NOTE: Winter semester
FORMAT: Lecture 3 hours. Offered in alternate years; next offered in 2015/2016.
PREREQUISITE: CHMA 2000

CHMA 3010.03: Bio-Analytical Chemistry.
This course will equip the non-chemistry major with an understanding of HPLC (liquid chromatography), GC (gas chromatography), AAS (atomic absorption spectrophotometry), and UV-visible spectrophotometry. The course will use environmental, agricultural, and food samples in classroom examples and in student laboratories. Students will be exposed to proper sample preparation and analysis, data interpretation and proper laboratory techniques with each of these analytical instruments. 
NOTE: Fall semester
FORMAT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: CHMA 2000
EXCLUSION: This course may not be taken for credit by students who have credit for CHMA 2002.

CHMA 4001.03: Directed Studies in Chemistry.
Directed studies involve a suitable combination of directed reading, written assignments, individual study or laboratory research projects in the area of chemistry. Classes are organized and scheduled by appropriate academic faculty via a course coordinator. Students should approach potential instructors directly with their inquiries.
NOTE: Fall or Winter semester
PREREQUISITE: CHMA 3000 or 60 credit hours
CROSS-LISTING: Coordinator: J. Hoyle

Communications

I. Undergraduate Degree Level Course Descriptions

CMMT 3000.03: Communication Theory and Skills (H).
This course is designed to provide students with the opportunity to enhance their communication skills and knowledge. Since a key requirement of today's job market is the ability to communicate effectively, students will be exposed to the theory and the practice of communication. An important component of the course will be the emphasis on the practical application of communication knowledge.
NOTE: Winter semester
FORMAT: Lecture 3 hours, lab 2 hours.
PREREQUISITE: At least second-year standing

CMMT 3001.03: Teaching English as a Second Language.
In cooperation with the University of Cambridge Local Examinations Syndicate (UCLES), the International Language Institute (ILI) offers an intensive class leading to a Certificate in Teaching English to Speakers of Other Languages (CELTA). The syllabus covers six major areas: language awareness; the learner, the teacher, and the teaching-learning context; planning; classroom management and teaching skills, resources and materials; and professional development. Critical feedback is provided on teaching practice, written assignments, and evidence of professional development through the class.
NOTE: Fall, Winter or Spring semester.
FORMAT: Fall, Winter or Spring semester.
PREREQUISITE: Students must obtain a Letter of Permission from the Registrar's Office to take this class for credit. Students must then apply, register, and pay fees for this class at the International Language Institute (ILI).

II. Technology Level Course Descriptions

CMMT 0020.00: Career and Employment Skills.
This course is designed to provide an introduction to job searching and hiring strategies. Through class discussion students will explore the world of work today, the hiring process, and the development of a personal career plan. Assignments will include resume and cover letter writing, a networking exercise, and interview preparation. Restricted to students in the Diploma in Business Management program.
NOTE: Winter semester. This is a Workplace Readiness course required for all options in the Diploma in Business Management program.
FORMAT: Lecture 3 hours for 6 weeks.

CMMT 0021.00: Introduction to Public Speaking.
The objective of this course is to enhance the student's ability to prepare and deliver different types of presentations: informative, persuasive, and impromptu. Topics covered will include assessing audience needs, developing a strong focus, outlining different styles of presentations, and writing effective introductions and conclusions. Students will learn how to evaluate a presentation and make recommendations on how to increase its effectiveness. Tips for presenting ideas visually will also be discussed.
NOTE: Winter semester. This is a Workplace Readiness course required for all options in the Diplomas in Business Management program.
FORMAT: Lab 2 hours for 4 weeks.

CMMT 0030.00: English for Academic Purposes.
This course will focus on enhancing English language skills (reading, writing, listening, critical thinking, and presentation skills required to be successful in an English university setting. Students who successfully complete
CMIT 0030 will be considered to have met their English language requirement and are eligible to continue full-time studies at Faculty of Agriculture.

NOTE: Fall semester

FORMAT: 15 hours per week for 180 hours.

PREREQUISITE: NSAC/FAFU 2+2 program student who meets all of the NSAC B.Sc.(Agr.) admission requirements, has achieved a minimum score of 5.5 on the IELTS (530 TOEFL), and has been recommended by the FAFU Overseas Education College as a strong candidate.

Computer Science

Below are courses offered in Computer Science by the Faculty of Agriculture. Please see the Computer Science Faculty Section for courses offered on the Halifax campus.

I. Undergraduate Degree Level Course Descriptions

CSCA 1000.03: Computer Methods.
A course to develop problem-solving and decision-making abilities and computational skills using computer software. Problems of a scientific and managerial nature will be chosen from a variety of agricultural fields. The course will cover word processing, spreadsheets, databases, programming, statistics, communications, graphics, and process control. Industry-leading software will be used.

NOTE: Fall and Winter semesters

FORMAT: Lecture 3 hours, lab 2 hours.

CROSS-LISTING: CSCA 0200

CSCA 2000.03: Computer Science.
Introduction to problem-solving methods and algorithm development. Emphasis is on designing, coding, debugging, and documenting programs, using C.

NOTE: Fall and Winter semesters

FORMAT: Lecture 3 hours, lab 2 hours.

CSCA 3000.03: Data Structures and Numerical Methods.
This course introduces the student to systems analysis and software techniques. Topics covered include objects, stacks, queues, multiple linked lists, and searching and sorting algorithms and their implementation in the C programming language. The students use linear algebra and numerical methods in engineering examples, while learning to implement properly structured solutions.

NOTE: Winter semester

FORMAT: Lecture 3 hours, lab 2 hours.

PREREQUISITE: CSCA 2000

II. Technology Level Course Description

CSCA 0200.02: Computer Methods.
A course to develop problem-solving and decision-making abilities and computational skills using computer software. Problems of a scientific and managerial nature will be chosen from a variety of agricultural fields. The course will cover word processing, spreadsheets, databases, programming, statistics, communications, graphics, and process control. Industry-leading software will be used.

NOTE: Fall and Winter semesters

FORMAT: Lecture 3 hours, lab 2 hours.

CROSS-LISTING: CSCA 1000
Economics

Below are courses offered in Economics by the Faculty of Agriculture. Please see the Economics Section in the Faculty of Science for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

ECOA 1000.03: Principles of Microeconomics (AH).
A course in microeconomics at the intermediate level. Topics include the theory of the firm, consumer theory, and market structures. All major concepts are presented graphically and some are studied using basic mathematics as well.
NOTE: Fall and Winter semesters.
NOTE: Fall semester
PREREQUISITE: ECOA 1000
FORMA T: Lecture 3 hours.
ECOA 1001.03: Principles of Macroeconomics (H).
A course in microeconomics at the intermediate level. Topics include the theory of the firm, consumer theory, and market structures. All major concepts are presented graphically and some are studied using basic mathematics as well.
NOTE: Fall and Winter semesters.
NOTE: Fall semester
PREREQUISITE: ECOA 1000
FORMA T: Lecture 3 hours.
ECOA 1002.03: Introduction to Economic Reasoning (INF) (H).
The macroeconomic aspect of this course is taught along with INF 1022 International Food Policy and Environment as part of the International Food Business program in Module 1: Acquiring Knowledge of International Food Systems. Students will successfully complete a series of practical tasks/assignments while learning about the global food environment. Topics will include balance of trade, production possibilities, exchange rates, and monetary policy. The macroeconomic aspect of the course will be taught along with MATH 1000 Introduction to Mathematical Programming in Module 2: Analyzing Business Processes. Topics will include resource scarcity, supply and demand, and market structures and pricing.
NOTE: Full Semester - Module 1 & 2 INF
ECOA 2000.03: Intermediate Microeconomics (H).
A course in microeconomics at the intermediate level. Topics include the theory of the firm, consumer theory, markets and market structure, and externalities and public goods. All major concepts are presented graphically and some are studied using basic mathematics as well.
NOTE: Full semester
FORMA T: Lecture 3 hours, lab 2 hours.
PREREQUISITE: ECOA 1000
This course extends the Principles of Microeconomics course to the intermediate level. Short-term, or business-cycle, macroeconomics is progressed from the introductory Keynesian income determination model to the IS-LM model, and then to the Aggregate Demand/Aggregate Supply model. The long-term macroeconomic content advances the introductory economic model in considering the relative importance of the factors determining the overall rate of economic growth. Throughout the course macroeconomic theory is related to macroeconomic policy goals, stabilizing the economy in the short term and promoting improvement in economic well-being in the long term.
NOTE: Full semester
FORMA T: Lecture 3 hours.
PREREQUISITE: ECOA 1000
ECOA 2003.03: Agricultural Futures and Options (AH).
The course begins with an introduction to agricultural futures markets. This leads into a study of fundamental and technical analysis of futures markets. The course concludes with a consideration of price risk management using futures markets. Following is an introduction to options markets and price risk management using options. The course concludes with a topic of importance when exporting or importing agricultural commodities internationally: managing exchange-rate risk using futures and options.
NOTE: Full semester
FORMA T: Lecture 3 hours.
PREREQUISITE: ECOA 1000
The course is designed as an introduction to environmental and resource economics issues and policy. Students will learn how economic analysis is applied to questions concerning use, management and conservation of natural resources, as well as market failures. Frameworks for measuring environmental costs and benefits and for exploring the efficiency of pollution control policies will also be developed. The impact of environmental and resource issues on the agri-food industry and all levels in the marketing chain will be examined. Applications include air and water pollution and global environmental problems, including climate change.
NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 2 hours, tutorial 1 hour.
PREREQUISITE: MTHA 1000, ECOA 1000
ECOA 3000.03: Mathematical Economics (H).
Introduction to the frequently-used mathematical methods of economic analysis. The course provides the student with the basics required in more advanced economics courses. Areas of concentration include elements of mathematical economics models, linear models and matrix algebra, applications of calculus to economic problems, and optimization theory.
NOTE: Full semester
FORMA T: Lecture 3 hours, lab 2 hours, tutorial 1 hour.
PREREQUISITE: MTHA 1000, ECOA 1000
ECOA 3002.03: Agricultural and Food Policy (AH).
This course introduces students to the structure of the agri-food industry and the process of policy and implementation. A critical assessment of the institutions (organizations, programs, and policies) in agriculture is the main focus of the course. Through guest speakers, students' presentations, interactive class discussions, and lectures, students will learn how policies are developed and who is involved in the policy development process. An historical appreciation for agricultural policy in Canada will be provided with a critical assessment of these policies. In reviewing policy problems affecting the agri-food industry, students will examine possible solutions to these issues. Topics covered include: reasons for government intervention; historical development of agri-food policy in Canada; the policy process; players in agriculture and food policy; structures of provincial, federal, and cost-shared programs; consumers and food policy; resource and environmental policy; international agricultural and food policies; trade agreements; and agribusiness involvement in agriculture and food policy.
NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 2 hours.
PREREQUISITE: ECOA 1000 and at least second-year standing
ECOA 3003.03: Mathematical Programming (AH).
An introduction to the theory and application of mathematical programming in the agri-food industry. The role of matrix algebra in determining linear programming solution procedures is developed. The information requirements, organization, and skills of model building are also introduced. The course will make extensive use of computer algorithms that generate solutions to linear programming models in the production, resource supply, and retail sectors of the agri-food industry.
NOTE: Winter semester
FORMA T: Lecture 4 hours, lab 1 hour per week.
PREREQUISITE: ECOA 3000
ECOA 3004.03: Agricultural Markets and Prices (AH).
An introduction to agricultural market and price analysis as a field of study within agricultural economics. An applied microeconomics approach is taken to studying agricultural supply and demand, price discovery, and market structure for crop and livestock products. In addition to cash (spot) markets, agricultural futures and options markets are studied, including managing agricultural commodity price risk by hedging.
NOTE: Winter semester.
PREREQUISITE: ECOA 2000

ECOA 3006.03: Statistics for Economics and Business (H).
This course is designed to train students in the application of statistical methods to business and economics problems. Emphasis will be given to the application of quantitative and qualitative methods to real-world problems in order to provide students with context in applications. Particular attention will be paid to both the art as well as the science of data analysis. Students will conduct analysis of data, using methods discussed in class, as a term project.
NOTE: Fall semester.
PREREQUISITE: ECOA 2000

ECOA 3007.03: Environmental and Resource Economics (H).
This course is designed to give students a basic introduction to the area of Resource Economics and an understanding of how economists view environmental problems. Topics of study will include public versus private goods, externalities, market failure, and the role of property rights in the economic system. The Course-themes will also be presented. Policy analysis contrasting market-based solutions for environmental problems with conventional solutions will be discussed. Specific topics will then be covered, including environmental policy surrounding water pollution, air pollution, and climate change. Issues related to nonrenewable and renewable economies and sustainable development will be discussed.
NOTE: Winter semester.
PREREQUISITE: ECOA 2000

ECOA 4000.03: Advanced Microeconomics (H).
This course is intended to give students an advanced treatment of Microeconomics. It is strongly recommended for those students wishing to undertake graduate work in economics, agricultural economics, or resource and environmental economics. Topics will include production economics, profit functions, cost functions, supply functions, and factor-demand. An advanced treatment of demand theory will also be presented, including Hicksian and Marshallian demands, derived via Horden’s equation. Both primal and dual approaches will be discussed.
NOTE: Winter semester.
EXCLUSIONS: This course may not be taken for credit by students who have credit for ECOA 3001 or ECOA 4003.

ECOA 4004.03: Trade (AH).
This course will provide students with an understanding of the factors that influence the exchange of products, with particular emphasis on trade interventions and institutions. Students will be introduced to trade theory, which they will use to evaluate trade policy issues. Students will learn how various government policy instruments and institutions affect international and interregional trade. Also, the complex set of rules and regulations governing international trade, such as the WTO, will be analyzed. The consequences of, and linkages among, international trade, the environment, and economic development will also be pursued.
NOTE: Fall semester.
PREREQUISITE: ECOA 2000 and third-year standing.

ECOA 4005.03: Advanced Macroeconomics (H).
This course provides a mathematical, mathematical coverage of classic issues in macroeconomic theory. The course starts with the classical model of a closed economy. A recreation of the labor market leads to the Keynesian model. An alternative treatment of the capital market underlies Tobin’s dynamic aggregate model. The role of inflation expectations is explored under the contracting case of economic agents having adaptive expectations and perfect foresight. By integrating macroeconomic thinking and mathematical reasoning in the context of non-stochastic models, the course is also preparatory to graduate studies in economics.
NOTE: Winter semester.
PREREQUISITE: ECOA 1000, ECOA 3000

II. Technical Level Course Descriptions

ECOA 0100.02: Introductory Microeconomics.
An introduction to the theory of the firm. The course examines the theory of demand and supply, distribution of income, forms of business organizations in Canada, and the levels of competition in the agricultural industry. Application of the various theories to explain the agricultural industry is stressed.
NOTE: Fall semester.
PREREQUISITE: ECOA 1000.

ECOA 0202.02: Production Economics.
An introduction to the study of economic principles used to analyze production and resource use in agriculture. Areas of emphasis include economic examination of the factor, factor-product, and product-product relationships of the farm production system. Practical examples and lab exercises are used to illustrate and reinforce the concepts presented in the classroom.
NOTE: Winter semester.

ECOA 3001.02: Environmental and Resource Economics (H).
An introduction to the study of economic principles used to analyze production and resource use in agriculture. Areas of emphasis include economic examination of the factor, factor-product, and product-product relationships of the farm production system. Practical examples and lab exercises are used to illustrate and reinforce the concepts presented in the classroom.
NOTE: Winter semester.

ECOA 3006.03: Statistics for Economics and Business (H).
This course is designed to train students in the application of statistical methods to business and economics problems. Emphasis will be given to the application of quantitative and qualitative methods to real-world problems in order to provide students with context in applications. Particular attention will be paid to both the art as well as the science of data analysis. Students will conduct analysis of data, using methods discussed in class, as a term project.
NOTE: Fall semester.
PREREQUISITE: ECOA 2000

ECOA 3007.03: Environmental and Resource Economics (H).
This course is designed to give students a basic introduction to the area of Resource Economics and an understanding of how economists view environmental problems. Topics of study will include public versus private goods, externalities, market failure, and the role of property rights in the economic system. The Course-themes will also be presented. Policy analysis contrasting market-based solutions for environmental problems with conventional solutions will be discussed. Specific topics will then be covered, including environmental policy surrounding water pollution, air pollution, and climate change. Issues related to nonrenewable and renewable economies and sustainable development will be discussed.
NOTE: Winter semester.
PREREQUISITE: ECOA 2000

ECOA 4000.03: Advanced Microeconomics (H).
This course is intended to give students an advanced treatment of Microeconomics. It is strongly recommended for those students wishing to undertake graduate work in economics, agricultural economics, or resource and environmental economics. Topics will include production economics, profit functions, cost functions, supply functions, and factor-demand. An advanced treatment of demand theory will also be presented, including Hicksian and Marshallian demands, derived via Horden’s equation. Both primal and dual approaches will be discussed.
NOTE: Winter semester.
EXCLUSIONS: This course may not be taken for credit by students who have credit for ECOA 3001 or ECOA 4003.

ECOA 4004.03: Trade (AH).
This course will provide students with an understanding of the factors that influence the exchange of products, with particular emphasis on trade interventions and institutions. Students will be introduced to trade theory, which they will use to evaluate trade policy issues. Students will learn how various government policy instruments and institutions affect international and interregional trade. Also, the complex set of rules and regulations governing international trade, such as the WTO, will be analyzed. The consequences of, and linkages among, international trade, the environment, and economic development will also be pursued.
NOTE: Fall semester.
PREREQUISITE: ECOA 2000 and third-year standing.

ECOA 4005.03: Advanced Macroeconomics (H).
This course provides a mathematical, mathematical coverage of classic issues in macroeconomic theory. The course starts with the classical model of a closed economy. A recreation of the labor market leads to the Keynesian model. An alternative treatment of the capital market underlies Tobin’s dynamic aggregate model. The role of inflation expectations is explored under the contracting case of economic agents having adaptive expectations and perfect foresight. By integrating macroeconomic thinking and mathematical reasoning in the context of non-stochastic models, the course is also preparatory to graduate studies in economics.
NOTE: Winter semester.
PREREQUISITE: ECOA 1000, ECOA 3000

II. Technical Level Course Descriptions

ECOA 0100.02: Introductory Microeconomics.
An introduction to the theory of the firm. The course examines the theory of demand and supply, distribution of income, forms of business organizations in Canada, and the levels of competition in the agricultural industry. Application of the various theories to explain the agricultural industry is stressed.
NOTE: Fall semester.
PREREQUISITE: ECOA 1000.

ECOA 0202.02: Production Economics.
An introduction to the study of economic principles used to analyze production and resource use in agriculture. Areas of emphasis include economic examination of the factor, factor-product, and product-product relationships of the farm production system. Practical examples and lab exercises are used to illustrate and reinforce the concepts presented in the classroom.
NOTE: Winter semester.

ECOA 3001.02: Environmental and Resource Economics (H).
An introduction to the study of economic principles used to analyze production and resource use in agriculture. Areas of emphasis include economic examination of the factor, factor-product, and product-product relationships of the farm production system. Practical examples and lab exercises are used to illustrate and reinforce the concepts presented in the classroom.
NOTE: Winter semester.
Engineering

Below are courses offered in Engineering by the Faculty of Agriculture. Please see the Faculty of Engineering Section for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

**ENGN 1001.03: Engineering Design I.**
- Students are introduced to the concept of Engineering Design and the design process.
- Procedures and conventions for the preparation of engineering drawings and technical reports are presented.
- Students develop skills in manual drawing and computer-aided drafting.

**ENGN 2202.03: Fundamentals of Environmental Engineering**
- This course introduces Environmental Engineering by introducing principles, applications, and design concepts pertinent to water quality and pollution, drinking and waste water treatment, solid and hazardous waste management, and air pollution and control.
- The role of process engineering for the protection of the physical environment will be stressed.

**ENGN 3001.03: Electric Circuits.**
- This course covers the fundamentals of electric circuit analysis using Kirchhoff’s current and voltage laws, Thevenin’s, Norton’s, superposition, and source transformation for AC and DC circuits.
- Circuit components include resistors, capacitors, inductors, voltage, and current sources.

**ENGN 3002.03: Thermo-fluids I.**
- Thermodynamics is a study of energy and energy transfers in the form of work and heat.
- The first and second law analyses are covered, including entropy, availability, and efficiencies.

**ENGN 3004.03: Digital Circuits.**
- This course includes an introduction to Boolean algebra, encoders, decoders, shift registers, and asynchronous and synchronous counters.
- Logical design and analysis software is used throughout the course.

**ENGN 3006.03: Engineering II.**
- This course teaches the concept of stress, strain and deformation of a solid body subjected to static forces.
- Topics considered include: stresses and strains under axial, bending, torsional and combined loadings; transformation relations for stresses and strains; Mohr’s circle for stress and strain; stress gauge; mechanical properties of materials; and failure theories.

**ENGN 3008.03: Electrical Circuits II.**
- This course covers advanced circuit analysis techniques, starting with sinusoidal excitation.
- The concepts of phase and complex impedance are fully developed.
- Mutual inductance and magnetically coupled coils are used to introduce transformer behavior and performance.

**ENGN 3011.03: Thermo-fluids II.**
- This course builds on the introduction to fluid mechanics in ENGN 3002.
- The course complements fluid statics from ENGN 3002, covers dimensional analysis, emphasizes the notion of control volume needed to properly solve thermal-fluid problems using the conservation laws presented as integral relations; treats flow in ducts, putting emphasis on head losses (friction and erosion), and presents a practical theory of turbomachinery.
- The different concepts studied during the course are brought together at the end in a series of design examples and design problems.

**ENGN 3015.03: Engineering Economy.**
- This course deals with the mathematics of decision-making.
- Techniques for making investment decisions are considered.
- The course considers enhancements in decision making.
- Risk and uncertainty analysis.
English

Below are courses offered in English by the Faculty of Agriculture. Please see the English Section in the Faculty of Arts and Social Sciences for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

EGLA 1000.03: Composition (H).
This course has two main objectives: to introduce what is involved in essay, literature review, and other university-level writing tasks, and to facilitate improvement of students’ critical thinking, reading, and writing skills. With these aims in mind, students are engaged in reading, research, and the processes of writing through composing, revising, editing, and proofreading. The course employs an approach that involves writing across the disciplines.
NOTE: Fall semester
INSTRUCTOR(S): Stiles
FORMAT: Lecture 3 hours

EGLA 1001.03: The Novel (H).
In this course, four to six novels will be read, discussed, and analyzed. In the process, students will acquire a vocabulary for talking about literature, and will put to use critical reading and writing skills. They will also learn how the novel can be a window into the historical age in which it is written, illuminating issues such as colonialism, gender relations, culture, race, ethnicity, or the differences between rural and urban life. Novels selected will vary from year to year, but may include those written by Chinua Achebe, Emily Brontë, Kate Chopin, Joseph Conrad, Daniel Defoe, Charles Dickens, Antonine Maillet, Toni Morrison, Gabrielle Roy, Mary Shelley, Oscar Wilde, and others.
NOTE: Winter semester
FORMAT: Lecture 3 hours.

EGLA 1002.03: Nature in Literature (H).
This course explores the ways in which nature is represented in literature through selected works by a number of authors of fiction, non fiction and poetry, including Margaret Atwood, Wendall Berry, John Clare, Dorothy Wordsworth, Henry David Thoreau, Nathanial Hawthorne, and others.
NOTE: Winter semester
INSTRUCTOR(S): Stiles
FORMAT: Lecture 3 hours.

EGLA 1003.03: Business Writing (INFB) (H).
International business writing is an essential skill in today’s business world. This course will provide opportunities to learn how and when to write effective proposals, letters, and memos. Typical business documents to be discussed include: proposals, letters, e-mail/memos, and reports. Some of the topics include: tailoring writing to the audience, selecting templates for documents, researching and presenting documentation, using word processing packages to create professional documents, and proofreading and editing.
NOTE: Fall Semester - Module #1 & #2 INFB

EGLA 1005.03: Academic Writing – International Students (H).
The objective of this course is to develop the skills necessary to write papers and reports at a university level. The course is designed specifically for students whose first language is not English, and it will focus on the process of writing from the development of a thesis or objective to the editing of the final document. Some of the topics include: selecting different types and styles of papers and reports, researching and presenting appropriate academic documentation, organizing material, preparing the initial draft, and proofreading and editing. The course will also focus on enhancing the student’s capacity to write in English.
NOTE: Full semester – Students whose first language is English are not eligible to take this course.
FORMAT: Lecture 3 hours, tutorial 2 hours per week.

EGLA 3000.03: Literature of Atlantic Canada (H).
This course focuses on the prose and poetry of the Atlantic region of Canada, looking at the works in historical, geographical, and social context, and discussing the concept of regionalism in literature. Classes will include lectures, films, videos, presentations, and discussions.
NOTE: Full semester
FORMAT: Lecture 3 hours.
PREREQUISITE: EGLA 1000 or EGLA 1001 or EGLA 1002 or any other first-year English course

II. Technical Level Course Description

EGLA 0101.02: Writing for Business.
The objective of this course is to develop the reading and writing skills necessary to write at a technical level and to develop appropriate writing strategies for business documents. The course will focus on the process of writing from the development of a thesis, researching for information, and writing the initial draft through to proofreading and editing. Typical business documents to be discussed include: proposals, letters, e-mail/memos, and reports. Some of the topics include: tailoring writing to the audience, selecting templates for documents, researching and presenting documentation, using word processing packages to create professional documents, and proofreading and editing.
NOTE: Full semester
FORMAT: Lecture 3 hours.

EGLA 0102.03: Nature in Literature (H).
This course explores the ways in which nature is represented in literature through selected works by a number of authors of fiction, non fiction and poetry, including Margaret Atwood, Wendall Berry, John Clare, Dorothy Wordsworth, Henry David Thoreau, Nathanial Hawthorne, and others.
NOTE: Winter semester
FORMAT: Lecture 3 hours.

PREREQUISITE: EGLA 1000 or EGLA 1001 or EGLA 1002 or any other first-year English course
Environmental Sciences

Below are courses offered in Environmental Sciences by the Faculty of Agriculture. Please see the Environmental Sciences Section in the Faculty of Science for courses offered on the Halifax campus.

I. Undergraduate Degree Level Course Descriptions

ENVA 2000.03: Environmental Studies I (A).
This is the first of a two-semester course sequence that deals with environmental issues from both an agricultural and a socio-economic basis. The scientific principles of each issue will first be outlined and explained, and then the agricultural and socio-economic aspects of the issue will be examined. The topics to be emphasized in this course will include issues associated with population growth, the atmosphere, and the hydrosphere. Students will be expected to show their understanding of the interplay between agriculture and environmental issues by writing a major term paper.
NOTE: Fall semester.
FORMAT: Lecture 3 hours.
PREREQUISITE: 6 technical or degree course credits.
EXCLUSION: Students can receive credit for either ENVA 2012 or ENVA 2000, but not both.

ENVA 2001.03: Environmental Studies II (A).
This is the second of a two-semester course sequence that deals with environmental issues from both an agricultural and a socio-economic basis. All aspects of the issues will be integrated to provide an overall view of each issue. The topics to be emphasized in this course will include issues associated with biodiversity, the biosphere, waste management, and legal aspects of the environment. Students will be expected to show their understanding of the interplay between agriculture and environmental issues by writing a major term paper.
NOTE: Winter semester.
FORMAT: Lecture 3 hours.

ENVA 2002.03: Composting and Compost Use (A) DE.
Composting and the utilization of organic matter produced on the farm provide the basis for soil fertility in organic systems; however, potential benefits derived from compost use are often limited by the supply and quality of compost produced on-farm. The objective of the web-based course is to teach composting primarily by providing students with the opportunity to make their own compost over a period of 13 to 15 weeks. Students learn through five stand-alone modules: Composting of Organic Materials (how the underlying principles of composting are applied when combining various feedstock materials for composting); Composting Process (how to evaluate and manage an actively working pile and troubleshoot to maintain optimum conditions for composting); On-Farm Composting (efficient and low cost composting methods for agricultural composting at various scales); Compost Quality (how to evaluate the quality of the finished compost), as well as an introduction to the requirements of various standards, markets, and end uses for compost; and Compost Utilization and Marketing (considerations and requirements for the optimal use of compost in organic greenhouse crop production and organic farming systems, as well as factors which are important in the marketing of compost).
NOTE: Fall semester. * Note: that making compost and completing all five modules will be a requirement for students who are taking the course for credit. Students who are not taking the course for credit may also decide to make compost and complete all five modules: however, this is not a requirement for non-credit students. To provide maximum flexibility for non-credit students, the modules are offered as independent (stand-alone) units.
FORMAT: DE—only offered as a web-based distance education course.

ENVA 3000.03: Environmental Impact Assessment.
An introduction to the study and assessment of environmental toxicity and ecotoxicology as they are used to predict the environmental impact of agricultural, industrial, and other xenobiotics and associated processes. The laboratory portion of the course will deal primarily with bioassay and assessment techniques.
NOTE: Winter semester.
FORMAT: Lecture 2 hours, lab 3 hours.

ENVA 3001.03: Environmental Sampling and Analysis.
This course will introduce students to the proper methods of sampling and experimental design for biological and chemical analyses, as well as for environmentally oriented surveys. Emphasis will be given to the actual collection of samples and their subsequent analysis.
NOTE: Fall semester.
FORMAT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: STA 1000.

ENVA 3002.03: Waste Management and Site Remediation (A).
This course will examine the following topics: pollution from wastes, waste disposal and treatment, the use of wastes as resources, recycling, composting, waste reduction, incineration, treatment from wastes, biogas production, site remediation, and bioremediation. Agricultural wastes will be emphasized throughout the course.
NOTE: Winter semester.
FORMAT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: ENVA 2001 or ENGN 2012.

ENVA 3003.03: Environmental Studies Field Course.
This 12-day course is designed to provide students with an opportunity to pursue a holistic approach to solve real environmental problems. It will be held at an environmentally significant site(s). Students will be expected to pre-plan and to perform on-site analyses to identify any environmental problems. An interim report of findings will be required during the course. After completion of the field work, students are expected to write a report of their findings with appropriate recommendations regarding solutions to identified problems. Students should contact the course instructor prior to October 15 in the preceding Fall semester for scheduling information about the course. Expenses associated with the course are the responsibility of the student. The course is offered subject to enrollment.
NOTE: Summer session.
FORMAT: 12-day course.
PREREQUISITE: 10 degree credits, including ENVA 2000 and ENVA 2001.

ENVA 3004.03: Principles of Pest Management (A).
An investigation of the philosophy of pest management. Topics will include the study of different approaches to pest management and an assessment of the use of single versus integrated pest control options. Costs of pest control from economic, social, and environmental perspectives will be discussed.
NOTE: Full semester.
FORMAT: Lecture 3 hours, seminar 3 hours per week.
PREREQUISITE: BIOM 1003.

ENVA 3021.03: Hydroecology (A).
This course deals with the emerging science and technology management tool of ecohydrology and the design of best management practices (BMPs) for water resource protection and use. Topics to be covered include: non-point source pollution, drainage and irrigation, soil erosion and deforestation, and the BMPs of buffer strips, natural vegetation, and manmade water management. Many topics for discussion will involve agricultural development in Canada and developing nations.
NOTE: Full semester.
FORMAT: Lecture 3 hours, lab 3 hours.

ENVA 4000.03: Pesticides in Agriculture (A).
A course dealing with various aspects of pesticides used in agriculture. The course will look at pesticides from their origin and development to their registration, sale, distribution, and use. Also included are discussions of safety and toxicity.
NOTE: Winter semester.
FORMAT: Lecture 2 hours, discussion period 3 hours.

ENVA 4002.03: Economic Entomology (A).
An introduction to the study of economic entomology from an agricultural perspective, covering principles of insect control (natural, mechanical, physical, cultural, biological, and legal), including chemical and biochemical control, and
Extension Education

I. Undergraduate Degree Level Course Description

EXTE 3001.03: Leadership Development and the Social Action Process (H).

Students will be looking at leadership development from a number of angles: current theories, leader identification, and leadership skills. The impact of leadership on the social action process will be analyzed in the context of rural communities. Analysis of the social action process will focus on participatory approaches to rural community development and extension. Students will have the opportunity to enhance personal leadership skills through discussion and practice.

NOTE: Fall semester
FORMAT: Lecture 3 hours
PREREQUISITE: At least third-year standing

Extension Education

I. Undergraduate Degree Level Course Description

EXTE 3001.03: Leadership Development and the Social Action Process (H).

Students will be looking at leadership development from a number of angles: current theories, leader identification, and leadership skills. The impact of leadership on the social action process will be analyzed in the context of rural communities. Analysis of the social action process will focus on participatory approaches to rural community development and extension. Students will have the opportunity to enhance personal leadership skills through discussion and practice.

NOTE: Fall semester
FORMAT: Lecture 3 hours
PREREQUISITE: At least third-year standing

ENVA 4003.03: Advanced Weed Science (A).
Deals with principles of weed science from an ecological perspective. Included are discussions on ecology and management of weeds in traditional agro-ecosystems as well as in low-input sustainable agricultural systems. The roles of biological, cultural, and chemical controls in these systems will be stressed.
NOTE: Winter semester
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: BIOA 3000

ENVA 4005.03: Geographic Information Systems (GIS) (A).
The objective of this course is to provide both a theoretical and a practical understanding of GIS concepts and GIS application skills as it relates to ESRI ArcGIS© software. Practical training and application skills will be acquired during laboratory sessions, whereas GIS foundations and concepts will be provided during lectures. The application of GIS technologies will focus on data sets derived from environmental science, soil science, or agriculture generally. A component of this class will be the application of GIS technologies to a student-defined problem or issue.
NOTE: Fall semester – This course has limited enrollment.
FORMAT: Lecture 2 hours, lab 2 hours
PREREQUISITE: At least third-year standing

ENVA 4006.03: Air, Climate and Climate Change (A).
This course examines the composition of our atmosphere, how it functions to create weather and climate, and its role in agricultural production. A fundamental understanding of chemistry and physics of atmospheric processes will provide the basis for an examination of micro-, regional-, and global-scale meteorological processes. The expression of these meteorological processes will be examined over time and space as a means of examining climate and climate change. The role of weather and climate in agricultural production will be discussed. The global debate surrounding anthropogenic greenhouse gas emissions and climate change will be considered from scientific, social and political perspectives. Agricultural adaptation to climate change, both regionally and globally, will be considered. The laboratory portion of the class will examine the tools for measuring the composition of the atmosphere, the physical state of the atmosphere, the transfer of heat and mass to and within the atmosphere, and the use of weather and climate data in agricultural decision-making.
NOTE: Fall semester
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: ENV A 2000

ENVA 4007.03: Directed Studies in Environmental Science.
Directed studies involve a suitable combination of directed reading, written assignments, individual study or laboratory research projects in the area of environmental sciences. Classes are organized and scheduled by appropriate faculty via a course coordinator. Students should approach potential instructors directly with their requests.
NOTE: Fall or Winter semester
FORMAT: as arranged
PREREQUISITE: ENV A 2000, ENV A 2001, and 20 degree credits

ENVA 4008.03: Directed Studies in Pest Management (A).
Directed studies involve a suitable combination of directed reading, written assignments, individual study or laboratory research projects in the area of pest management. Classes are organized and scheduled by appropriate faculty via a course coordinator. Students should approach potential instructors directly with their requests.
NOTE: Fall or Winter semester - Extension Education
FORMAT: as arranged
PREREQUISITE: One of BIOA 2005, BIOA 3000, BIOA 3002 (as per topic chosen) and 20 degree credits
Food Science

I. Undergraduate Degree Level Course Descriptions

FOOD 1000X/Y:03: Food Safety and Quality Assurance (INFB).

This course is part of Module 3 of the International Food Business program - Analyzing Food Chains. It provides students with an introduction to food safety and quality assurance issues and developments. Topics include quality assurance systems both public and private, legislation and responsibility.

NOTE: Winter Semester - Module 3 INFB.

FOOD 3000:03: Food Quality Assurance (A).

The various quality philosophies (QC, QA, TQM) will be studied with respect to their industrial applications. The course will centre on the use of control charts to monitor processes and to evaluate the quality of both incoming raw materials and the finished product. Students will gain first-hand experience in the design and implementation of ISO 9000 and HACCP systems in the commercial food industry. The application of these principles to other manufacturing processes and/or data acquisition will be discussed. Consideration will also be given to recognizing the quality criteria required by some international customers.

NOTE: Winter semester.

FORMAT: Lecture 3 hours, lab 3 hours

PREREQUISITE: CHMA 2000 and 20 degree credits; students taking FOOD 3000 are strongly encouraged to take CHMA 2003 or CHMA 2004

FOOD 3001:03: Functional Foods and Nutraceuticals (A).

Interest in functional foods and nutraceuticals is growing rapidly and it has emerged as a new frontier of the agri-food and nutrition industry worldwide. This course provides a basic scientific knowledge of bioactive plant compounds (phytochemicals) present in functional foods and nutraceuticals. Emphasis will be given to phytochemical biosynthesis, classification, distribution among food and medicinal crops, analysis, and current scientific knowledge on the potential health benefits of the bioactive phytochemicals. The course also introduces global marketing trends, government regulations, principles of designer food, and value-added food processing concepts in functional foods and nutraceuticals.

NOTE: Full semester

FORMAT: Lecture 3 hours, lab 3 hours

PREREQUISITE: CHMA 2000

FOOD 4000:03: Directed Studies in Food and Bioprocess Science (A).

Directed studies involve a suitable combination of directed reading, written assignments, individual study or laboratory research projects in the area of food and bioprocess science. Courses are organized and scheduled by appropriate faculty via a course coordinator. Students should approach potential instructors directly with their requests.

NOTE: Fall or Winter semester

FORMAT: as arranged.

PREREQUISITE: CHMA 2000 and 20 degree credits; students taking FOOD 4000 are strongly encouraged to take CHMA 2003 or CHMA 2004

II. Technical Level Course Description

FOOD 0020:00: Topics in Agriculture & Food Enterprise Management.

Students participate in an examination of the structure of agri-food industry and of the context in which individual enterprises operate. They are required to identify current issues facing the agricultural industry at all levels, and to examine their potential impact on sustainability and opportunities in the Atlantic Canadian industry.

NOTE: Winter semester – This is a Workplace Readiness course required in the Agriculture option of the Diploma in Business Management.

FORMAT: Lecture 1 hour for 12 weeks

French

Below are courses offered in French by the Faculty of Agriculture. Please see the French Section in the Faculty of Arts and Social Sciences for courses offered on the Halifax campus.

I. Undergraduate Degree Level Course Descriptions

FRNA 1000:03: French Language I (H).

This course is designed to fill the needs of students who have studied French in high school, and is intended to review grammar and provide an opportunity to polish and refine language skills. Courses will emphasize basic grammatical structures, pronunciation, listening comprehension, and speaking skills. FRNA 1000 is designed to provide the student with opportunities to use the language and enhance written, spoken, and comprehension skills. This course is not intended as an introduction to the French language. Students whose first language is French or who are fluent in the French language are not eligible to take this course.

NOTE: Full semester

FORMAT: Lecture 3 hours.

PREREQUISITE: Grade 12 French or equivalent within the last five years

FRNA 1001:03: French Language II (H).

This course is designed to fill the needs of students who have already studied French, and is intended to review grammar and provide an opportunity to refine language skills. Courses will emphasize basic grammatical structures, pronunciation, listening comprehension, and speaking skills. FRNA 1001 is designed to provide the student with opportunities to actively use the language.

This course is intended not as an introduction to French language but as a review and continuation of the major aspects of FRNA 1000. It is expected that students have a basic grasp of French grammar and some vocabulary. Students whose first language is French or who are fluent in the French language are not eligible to take this course.

NOTE: Winter semester

FORMAT: Lecture 3 hours, tutorial 2 hours per week.

PREREQUISITE: FRNA 1000

FRNA 1003: French Language III (H).

This course is designed to fill the needs of students who have already studied French, and is intended to review grammar and provide an opportunity to refine language skills. Courses will emphasize basic grammatical structures, pronunciation, listening comprehension, and speaking skills. FRNA 1003 is designed to provide the student with opportunities to actively use the language.

This course is intended not as an introduction to French language but as a review and continuation of the major aspects of FRNA 1000. It is expected that students have a basic grasp of French grammar and some vocabulary. Students whose first language is French or who are fluent in the French language are not eligible to take this course.

NOTE: Winter semester

FORMAT: Lecture 3 hours, tutorial 2 hours per week.

PREREQUISITE: FRNA 1000
Genetics

I. Undergraduate Degree Level Course Descriptions

GENE 2000.03: Genetics.
This course studies heredity and variation in plants and animals, including man, and the relationships of genetics to evolution and breeding practices.
NOTE: Fall semester
FORMAT: Lecture 3 hours, lab 2 hours.

GENE 3000.03: An Introduction to Molecular Genetics.
The objective of this course is to provide students with a general foundation in molecular genetics and recombinant DNA technology. Replication, transcription, protein synthesis, recombinant DNA, and the regulation of gene expression in prokaryotes and eucaryotes will be studied in detail. Ethical and legal issues related to the production, testing, and ownership of genetically engineered organisms will be discussed. In the laboratory, students will be exposed to a range of molecular genetic techniques, including isolation and restriction site mapping of bacterial plasmids, bacterial transformation, isolation and restriction enzyme digestion of genomic DNA, and PCR amplification. Students completing this course will be able to read original research papers in the molecular genetic literature, and will be prepared for advanced training in molecular biology, plant breeding, or animal breeding.
NOTE: Winter semester
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: GENE 2000, preparatory: one course in biochemistry

GENE 3001.03: Population and Quantitative Genetics.
An introduction to population and quantitative genetics, with particular emphasis on the forces causing genetic change in populations. Applications from natural populations, conservation biology, and plant and animal breeding will be used to illustrate theories of evolution and modern breeding methods. Contemporary ideas about evolution at both the molecular and organismal levels will be explored. Laboratory sessions include discussion of concepts and use of computer simulations to model populations under natural and artificial selection.
NOTE: Winter semester
FORMAT: Lecture 3 hours, lab 2 hours. Offered in alternate years; next offered in 2014/2015
PREREQUISITE: GENE 2000, STAA 2000

GENE 4000.03: Molecular Applications to Animal Production.
This upper-level course is designed for students interested in the molecular and cellular techniques that are being applied to animal production systems and research. Topics include molecular techniques used in research, DNA fingerprinting, marker-assisted selection, embryo IVF/sexing/nuclear transfer, recombinant protein production, the use of recombinant microbes in ruminants, and stem cell and transgenic animal production.
NOTE: Fall semester
FORMAT: Lecture 3 hours. Offered in alternate years; next offered in 2013/2014.
PREREQUISITE: CIDMA 3000 (or CIDMA 2005), GENE 3000

GENE 4003.03: Biotechnology.
Biotechnology includes the generation of new medicine, generation of biofuel, new chemicals and materials, removal of pollutants, and production of better and safer foods. The objective of this course is to provide students with general information on the theory and technologies that are currently used in biotechnology. Course topics will include gene identification, transformation and expression regulations, tissue culture and cell culture techniques, and other genetics-related agricultural applications. Nutraceutical and pharmaceutical applications will be addressed.
NOTE: Fall semester
FORMAT: Lecture 3 hours

GENE 4004.03: Laboratory Techniques in Genomics.
An intensive course that provides hands-on training in manipulations used routinely in molecular labs. An exercise for both hands and mind, students will work in pairs and should be prepared to spend four hours per laboratory session as well as two hours of instruction and preparation on the day immediately preceding lab class. Laboratory reports will account for the bulk of the mark, with a participation score and a final exam rounding out the grade.
NOTE: Winter semester
FORMAT: Lab 6 hours
PREREQUISITE: GENE 3000 or GENE 4000

PREREQUISITE: GENE 2000
CROSS-LISTING: AGRI 5750
**Geography**

Below are courses offered in Geography by the Faculty of Agriculture. Please see the Geography Section in the Faculty of Science for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

**GEOA 1000.03: Introductory Human Geography (H).**

This course is an introduction to the field of Human Geography. The objectives of the course are to present the spatial point of view on human/land interactions. Lectures, readings, and assignments consider geographical patterns, processes, and problems in rural and urban settings. Some emphasis will be given to the Canadian and Atlantic region contexts.

NOTE: Winter semester
FORMA T: Seminar 3 hours per week.

**GEOA 3000.03: Rural Geography (H).**

This course focuses on rural geographic problems in Canada and the Atlantic region. Discussion will include, for example, rural land use issues, settlement dynamics, rural economic problems, urban/rural interaction, agricultural change, rural well-being, and rural planning. The geographic perspective emphasizes spatial variability and human/land interactions.

NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

**Geology**

Below are courses offered in Geology by the Faculty of Agriculture. Please see the Geology Section in the Faculty of Science for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Description

**GELA 2000.03: Introduction to Geology.**

This course introduces the student to the basic concepts of Earth Science and Physical Geology. Geology, as a subject matter area in the Earth Sciences, is closely related to soil science. This course will examine the nature of Earth materials as well as Earth processes, both internal and surface. Minerals, rocks, earthquakes, streams, and groundwater are just some of the areas investigated in this course. Many geological processes are of importance to the Environmental Sciences because an understanding of Earth processes is fundamental for the understanding of human impacts on our landscapes.

NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

**GEOA 1000.03: Introductory Human Geography (H).**

This course is an introduction to the field of Human Geography. The objectives of the course are to present the spatial point of view on human/land interactions. Lectures, readings, and assignments consider geographical patterns, processes, and problems in rural and urban settings. Some emphasis will be given to the Canadian and Atlantic region contexts.

NOTE: Winter semester
FORMA T: Seminar 3 hours per week.

**GEOA 3000.03: Rural Geography (H).**

This course focuses on rural geographic problems in Canada and the Atlantic region. Discussion will include, for example, rural land use issues, settlement dynamics, rural economic problems, urban/rural interaction, agricultural change, rural well-being, and rural planning. The geographic perspective emphasizes spatial variability and human/land interactions.

NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.

**GELA 2000.03: Introduction to Geology.**

This course introduces the student to the basic concepts of Earth Science and Physical Geology. Geology, as a subject matter area in the Earth Sciences, is closely related to soil science. This course will examine the nature of Earth materials as well as Earth processes, both internal and surface. Minerals, rocks, earthquakes, streams, and groundwater are just some of the areas investigated in this course. Many geological processes are of importance to the Environmental Sciences because an understanding of Earth processes is fundamental for the understanding of human impacts on our landscapes.

NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.
History

Below are courses offered in History by the Faculty of Agriculture. Please see the History Section in the Faculty of Arts and Social Sciences for courses offered on the Halifax campus.

I. Undergraduate Degree Level Course Descriptions

HISA 1000.03: Introduction to Canadian History I
1000–1867 (H).
This course introduces students to the theory and practice of history through a general historical survey of Canadian history, for the period from approximately 1000 CE [Common Era] to about the mid-19th century. Historical theories and methodologies will be introduced in this course. The student will be introduced to concepts, theories, and methodologies employed in historical study.
NOTE: Winter semester
FORMAT: Lecture 3 hours.

HISA 1000.03: Introduction to Canadian History
II 1867–Present (H).
This course will examine the problems of modernity, through an exploration of Canadian history from the mid-19th century through to the present. Political, social, and cultural developments and transformations will be emphasized. In addition to the exploration of Canadian history, Canadian identity, the student will be introduced (or, in the case of those who have previously taken HISA 1000, reintroduced) to concepts, theories, and methodologies employed in historical study.
NOTE: Winter semester
FORMAT: Lecture 3 hours.

HISA 3000.03: Rural History (H).
This course will introduce students to selected problems in the study of rural history. Problems to be considered in at least two time periods may include the following: the problem of change in rural society vis à vis industrialization; the intersection of national, ethnic, and other "identity" with rurality; the changing rural context of the past. The student will be introduced to concepts, theories, and methodologies employed in historical study.
NOTE: Winter semester
FORMAT: Lecture 3 hours.

HISA 2000.03: Rural History (H).
This course will introduce students to selected problems in the study of rural history. Problems to be considered in at least two time periods may include the following: the problem of change in rural society vis à vis industrialization; the intersection of national, ethnic, and other "identity" with rurality; the changing rural context of the past. The student will be introduced to concepts, theories, and methodologies employed in historical study.
NOTE: Winter semester
FORMAT: Lecture 3 hours.

HISA 1000, 1001: Introduction to Canadian History

HISA 1000.03: Rural History (H).
This course will introduce students to selected problems in the study of rural history. Problems to be considered in at least two time periods may include the following: the problem of change in rural society vis à vis industrialization; the intersection of national, ethnic, and other "identity" with rurality; the changing rural context of the past. The student will be introduced to concepts, theories, and methodologies employed in historical study.
NOTE: Winter semester
FORMAT: Lecture 3 hours.

HISA 3000.03: Rural History (H).
This course will introduce students to selected problems in the study of rural history. Problems to be considered in at least two time periods may include the following: the problem of change in rural society vis à vis industrialization; the intersection of national, ethnic, and other "identity" with rurality; the changing rural context of the past. The student will be introduced to concepts, theories, and methodologies employed in historical study.
NOTE: Winter semester
FORMAT: Lecture 3 hours.

HISA 1000.03: History Section in the Faculty of Agriculture

Horticulture

I. Undergraduate Degree Level Course Descriptions

HORT 2000.03: Vegetable Production (A).
Study of the principles that form the basis for organic production systems. Special emphasis is given to soil fertility, organic soil amendments, compost and mulch, crop rotation, plant health, management of diseases and pests, companion planting, and produce storage and handling. Seminar topics will include making the transition to organic production, and definition and legislation of organic food in Canada.
NOTE: Fall semester
FORMAT: Lecture 2 hours, lab 2 hours.

HORT 2001.03: Principles of Organic Horticulture (A) DE.
Study of the principles that form the basis for organic production systems. Special emphasis is given to soil fertility, organic soil amendments, compost and mulch, crop rotation, plant health, management of diseases and pests, companion planting, and produce storage and handling. Seminar topics will include making the transition to organic production, and definition and legislation of organic food in Canada.
NOTE: Fall semester
FORMAT: DE - only offered as a web-based distance education course.

HORT 2003.03: The British Garden.
The history of British landscape development is studied, supported by visits to gardens that exemplify period design. Period garden features and the design philosophy that fostered the evolution of landscape development will be examined. North American and British landscape maintenance standards and techniques will be compared. Plant identification will be a component of this course.
NOTE: Summer semester - The course is offered in England, subject to enrollment. Expenses associated with the course are the responsibility of the student.
FORMAT: 4 weeks intensive.

HORT 2004.03: Introduction to Viticulture (A).
This course will introduce students to selected problems in the study of viticulture in the Atlantic region will initially examine the taxonomy, vitology, physiology, and biochemistry of grapevine growth and fruit maturation. Emphasis will be placed on the environmental regulation of grapevine growth, development, yield and composition, and management strategies to optimize grape production in cool-climate viticulture production areas. Included will be an examination of the importance of site selection, soil management, grapevine cultivars, rootstocks, clones, production systems, and vineyard establishment. Cultural management practices including pruning, training, canopy management, crop control, and mechanization will be discussed, and an overview of pest pressures and other environmental concerns including winter hardiness will be covered. Lastly, the harvesting and vinification of wine grapes will be examined with the inclusion of "hands-on" laboratory sessions at a commercial vineyard and winery. Successful completion of the course should prepare students for upper-division courses in viticulture and enology.
NOTE: Full semester
FORMAT: Lecture 3 hours, lab 3 hours.

HORT 2005.03: Design & Construction of Turf Facilities.
Includes the interpretation and implementation of design and construction plans for various facilities such as golf courses and recreational fields. Topics include understanding the basic concepts involved in golf course construction, individual
components of a golf course, design and construction of sport turf facilities, and development and maintenance of high-end facilities, including those using synthetic turfgrass. Emphasis will be placed on the special considerations needed to "grow in" a new turf in each of these situations.

NOTE: Winter semester

FORM: Lecture 2 hours, lab 3 hours

HORT 2006.03: Tree Fruit Crops (A)

Tree fruit production with emphasis on resource conservation is investigated in relation to the region. Origins, history, horticultural systems, adaptation, and culture of true fruits, including organic systems, are studied. Propagation, pruning, training, harvesting, and marketing of these crops are covered in this course.

NOTE: Winter semester

FORM: Lecture 3 hours, lab 2 hours

CROSS-LISTING: HORT 2025

HORT 2007.03: Small Fruit Crops (A)

This course remains of the study of strawberry, blueberry, raspberry, cranberry, currant, gooseberry, low, elderberry, Saskatoon berry, and grape production. Aspects of propagation through to harvesting and marketing of each crop is discussed. Some aspects of organic production of small fruits are included. Origins, adaptation, and distribution of each crop are examined. New small fruit crop development for nutraceuticals is covered.

NOTE: Fall semester – Note: Field trips to small fruit farms, small fruit crop nurseries, and research institutes are included during the term.

FORM: Lecture 3 hours, lab 2 hours

CROSS-LISTING: HORT 2002

HORT 2009.03: Landscape Plant Nursery Management (A)

Nursery crops are those plant materials generally used for outdoor landscape plantings, including trees, shrubs, vines, and other plants having persistent woody stems, and all herbaceous perennials. This course will examine the selection, propagation, growing, handling, and marketing of these materials. The course uses an entrepreneurial approach with emphasis on the importance of new plant introductions, and plant and landscaping trends analysis. The course also examines the nursery industry from the standpoint of where it fits into the bigger picture, i.e., the overall "green" industry.

NOTE: Winter semester

FORM: Lecture 3 hours, lab 2 hours

PREREQUISITE: AGRI 1000, preparatory: BIOA 2002

CROSS-LISTING: HORT 2020

HORT 2010.03: Greenhouse and Floriculture Crop Management (A)

Greenhouse and floriculture crop production is one of the most exacting specialties in the field of agriculture. It is the only type of crop production where almost complete control of plant growth is achieved with the modification of environmental conditions. This is obtained through atmosphere modification (increasing CO2 levels), temperature control, control of light, nutrition, and water; the application of growth-modifying chemical regulators; and pest control. Greenhouse management can therefore be one of the most interesting and intriguing of the agricultural sciences. This course will examine the greenhouse, its environment, and the production of crops in this environment, plus outdoor cut-flower production.

NOTE: Fall semester

FORM: Lecture 3 hours, lab 2 hours

PREREQUISITE: AGRI 1000, preparatory: BIOA 2002

CROSS-LISTING: HORT 2021

HORT 3000.03: Environmental Processes and Natural Landscape Functions.

The structure, functions, and dynamics of landscapes that are altered by human design are discussed. Key ecological processes and their disruption, landscape modification, and landscape planning and management will be examined. Students are expected to participate in field work, and to engage in self-directed study.

NOTE: Full semester

FORM: Lecture 3 hours, lab 3 hours

HORT 3001.03: Landscape Project Management.

This course is an introduction to landscape design, estimating, and construction. Principles and processes for cost estimation will be studied, using actual landscape projects and considering local building codes and regulations. Computers will be utilized in the process.

NOTE: Full semester

FORM: Lecture 3 hours, lab 3 hours

PREREQUISITE: A previous course in landscape design and construction

HORT 3008.03: Horticultural Therapy (H)

An in-depth study of the application of horticultural activities as a treatment modality, e.g., working with youth and older adults, the rehabilitation of handicapped individuals, treatment of emotional trauma, and substance abuse, and others. Attention is given to understanding problems associated with client groups and specific horticultural activities used in therapeutic programs.

NOTE: Winter semester

FORM: Lecture 3 hours, lab 3 hours

HORT 4000.03: Urban Tree Management.

This course focuses on the management of the urban forest. Tree inventory systems, planning the urban forest, forest management, site reclamation, the valuation of urban trees, and trees and the law will be included. Lab exercises will include tree assessment techniques, tree inventory exercises, use of tree inventory software, new techniques for hazard tree assessment, new techniques for managing pests and diseases in urban trees, and site assessment and remediation. Tree pruning exercises will emphasize preservation of tree structure, quality of cuts, and work efficiency and safety.

NOTE: Full semester

FORM: Lecture 3 hours, lab 3 hours

PREREQUISITE: HORT 0207 or a previous course in arboriculture, or permission of the instructor

II. Technology Level Course Descriptions

HORT 0100.02: Landscape Plants I

Herbaceous and woody plants are studied with respect to their identification, landscape value, and use. Special groups of plants to be studied include plants with fall interest, shade-loving plants, groundcovers, and vines, as well as many other plants suited to Atlantic landscapes. The lab involves the study of plant families, plant morphology, use of plant keys, plant collecting, and preparation of herbarium specimens. A plant collection is required.

NOTE: Full semester

FORM: Lecture 3 hours, lab 2 hours

HORT 0101.02: Landscape Plants II

Herbaceous, woody, and aquatic plants are studied with respect to their identification, landscape value, and use. Special plant groups studied will be deciduous trees, shrubs and vines, and ground covers. The lab covers herbaceous perennials, herbaceous and woody material for hedges, and aggressive species for the groundcover. The course is designed to train students in the use of the University of Maine Plant Information System (PIS) and to familiarize them with the many native and introduced plants that are so important to the region.

NOTE: Winter semester

FORM: Lecture 3 hours, lab 2 hours

HORT 0102.02: Turfgrass Production and Management

A study of cool-season turfgrasses, their characteristics, and proper usage. The establishment, maintenance, and renovation of turfgrass will be studied. Cultural practices employed will focus on proper fertilization, watering, and pest control.

NOTE: Full semester

FORM: Lecture 3 hours, lab 2 hours

HORT 0103.02: Landscape Horticulture I

An introduction to landscape horticulture. Plant propagation instruction and the fundamental principles governing plant growth are discussed, as well as the functional use of ornamental plants in the contemporary landscape. Laboratory exercises will concentrate on the basic skills associated with the use of plants in the landscape.

NOTE: Full semester

FORM: Lecture 3 hours, lab 3 hours

HORT 0200.02: Landscape Plant Nursery Management.

Nursery crops are those plant materials generally used for outdoor landscape plantings, including trees, shrubs, vines and other plants having persistent woody stems, and all herbaceous perennials. This course will examine the selection, propagation, growing, handling, and marketing of these materials. The course uses an entrepreneurial approach with emphasis on the importance of new plant
Horticulture

PREREQUISITE: HORT 0100, HORT 0103, HORT 0209
FORMA T: Lecture 3 hours, lab 3 hours.
NOTE: Winter semester

HORT 0201.02: Greenhouse and Floriculture Crop Management.
Greenhouse and floriculture crop production is one of the most exciting specialties in the many areas of agriculture. It is the only type of crop production where almost complete control of plant growth is achieved with the modification of environmental conditions. This is obtained through atmosphere modification (increasing CO₂ levels, temperature control, control of light, nutrition and water; the application of growth-modifying chemical regulators; and pest control. Greenhouse management can therefore be one of the most interesting and intriguing of the agricultural sciences. This course will examine the greenhouse, its environment, and the production of crops in this environment, plus outdoor cut-flower production.
NOTE: Full semester
FORMA T: Lecture 3 hours, lab 2 hours.
CROSS-LISTING: HORT 2009

HORT 0202.02: Small Fruit Crops.
The course consists of the study of strawberry, blueberry, raspberry, cranberry, currant, gooseberry, kiwif, echidnberry, Saskatoonberry, and grape production. Aspects of propagation through to harvesting and marketing of each crop is discussed. Some aspects of organic production of small fruits are included. Origins, adaptation, and distribution of each crop are examined. New small fruit crop development for nutraceuticals is covered. Origins, adaptation, and distribution of each crop are examined. New small fruit crop development for nutraceuticals is covered.
NOTE: Fall semester – Note: Field trips to small fruit farms, small fruit crop nurseries, and research institutes are included during the term.
FORMA T: Lecture 3 hours, lab 2 hours.
CROSS-LISTING: HORT 2010

HORT 0203.02: Tree Fruit Crops.
Tree fruit production with emphasis on resource conservation is investigated in relation to the region, Origins, history, biodynamics, adaptation, and culture of true fruits, including organic systems, are studied. Propagation, pruning, training, harvesting, and marketing of these crops are covered in this course.
NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 2 hours.
CROSS-LISTING: HORT 2006

HORT 0204.02: Landscape Plants III.
Herbaceous, woody, and aquatic plants are studied with respect to their identification, use, and value in landscape settings. Special plant groups included in the course include woody plants, sensory plants, container plants, medicinal herbs, ornamental perennials, and biodynamics. Laboratory exercises concentrate on specific arboriculture skills and techniques.
NOTE: Fall and Winter semesters
FORMA T: Lecture 3 hours.

HORT 0205.02: Residential Landscape Design and Construction.
This course introduces a systematic process for developing residential landscape designs. Emphasis is placed upon maximizing the usefulness of the property and developing it in an environmentally sound and sustainable manner. Lab exercises will utilize the computer as a design tool as well as conventional graphic techniques.
NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.
PREREQUISITE: HORT 0100, HORT 0103, HORT 0209

HORT 0207.02: Arboriculture.
Emphasis is placed upon arboriculture theory and practice. True problems arising from pest and disease injury, as well as environmental and non-parasitic injury of trees, will be addressed. The course will focus on the tree in an urban environment. Laboratory exercises concentrate on specific arboriculture skills and techniques.
NOTE: Full semester
FORMA T: Lecture 3 hours, lab 3 hours.
PREREQUISITE: HORT 0103

HORT 0208.02: Landscape Maintenance.
Provides an overview of site management. Time studies, scheduling of horticultural work and management techniques are included. Plant healthcare strategies, including pesticides and their application, are discussed, and provincial pesticide applicator courses are written in preparation for licensing. A calendar of landscape maintenance tasks will be developed by the student.
NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 2 hours.
PREREQUISITE: HORT 0100, HORT 0101

HORT 0209.02: Landscape Horticulture II.
A study of herbaceous plants and their uses in landscape. Special plant groups, gardening techniques, and styles will be examined. Both computer and conventional methods of drafting will be utilized in design.
NOTE: Full semester
FORMA T: Lecture 3 hours, lab 2 hours.
PREREQUISITE: HORT 0100. Prerequisite/Co-requisite: HORT 0103

HORT 0210.02: Landscape Installation.
This course provides theoretical and practical training in landscape construction and installation. Skills and standards identified by the Canadian Nursery and Landscape Association and tested through the Canadian Certified Horticultural Technician Program are considered minimum in levels of information presented in a modular format. Topics include plant reading, construction drawings, and site grading.
NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.
PREREQUISITE: Corequisite: ENGN 0101

HORT 0211.02: Vegetable Production.
Production technology for the major vegetable groups in the Atlantic region are studied in detail, including historical and horticultural characteristics, soil and fertility requirements, cultivar selection, pest management, and harvest and storage requirements. Commercial vegetable enterprises are visited.
NOTE: Full semester
FORMA T: Preparatory: PLSC 0100
PREREQUISITE: Corequisite: ENGN 0101
CROSS-LISTING: HORT 2000
Below are courses offered in International Development by the Faculty of Agriculture. Please see the International Development Studies Section in the Faculty of Arts and Social Sciences for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

IAGR 2002.03: International Rural Development (H).
This course explores the history, defining characteristics, and diversity of developing societies, with a focus on the people and issues of rural communities. Students will explore the main issues facing rural communities in developing regions, as well as the many cultural, social, political and economic factors that can impact the success of development projects and initiatives at the community level. Students will be expected to develop an understanding of a variety of perspectives on international community development and also to develop an appreciation for the opportunities and challenges of sustainable development in different societies and cultures.

NOTE: Fall semester

FORMAT: Lecture 3 hours.

The focus of the course is food production and food security in Cuba, with emphasis on animal production, urban gardens, herbal medicine, environmental protection, ecotourism, and rural development. Students will also learn about Cuba’s history, politics, economy, and culture and how these socioeconomic factors influence food production and food security. Readings, discussions and self-directed study are required during the semester.

NOTE: Winter semester– One week of the course is spent in Cuba in conjunction with the University of Cienfuegos. The week consists of volunteer work projects and tours (augmented with lectures) of urban gardens, an experimental dairy cooperative, an alternative agro-ecological farm, an herbal medicine farm, and coastal and mountain ecosystems. Additional fees for travel, meals, and accommodation apply.

FORMAT: Lecture 3 hours, plus one week in Cuba.

IAGR 2004.03: Agri - Food Systems in India.
Examines the agro-food and environmental issues of tropical and dryland farming in southern India (Tamil Nadu). Students must attend pre-departure travel at the Agricultural Campus; submit a mini-research paper prior to departure; participate actively in the agri-food tours; and write a second paper after the trip. Travel costs, in addition to tuition, are associated with this study abroad course.

NOTE: Summer Semester

FORMAT: 2 week study tour in India in August plus 30 hour pre-departure independent research and pre-departure orientation. Final paper submitted after conclusion of the study trip.

IAGR 3000.03: Tropical Agriculture (A).
This course will introduce the student to food production, storage, and handling systems in tropical and subtropical countries. The sustainability of these systems and issues that limit the use of the environment for long-term food production will be identified. Farming systems and the role of national/international research centres are examined. The instruction will include resource people from several disciplines.

NOTE: Fall semester

IAGR 3001.03: Directed Studies in International Development (A).
Independent study of topics in international development at an advanced level, with a focus on agriculture and rural development. Topics are developed through literature review, assigned readings, and discussion, and may include independent research. Students are expected to present the final project at a public seminar.

Students are encouraged to use international travel or study opportunities as a focus, but this is not required. Topics must be supervised by a faculty member in the proposed area of interest, and approved by the Department Head of Business and Social Sciences. Students must apply to the Department Head at least six weeks before the semester start date. This course would normally be taken by undergraduate students in their final year.

NOTE: Fall, Winter or Summer

FORMAT: as arranged.

PREREQUISITE: 30 degree credits or final-year standing.

IAGR 4000.03: Global Seminar on Rural Sustainability (A).
An international course which brings together students from around the world to investigate and discuss local and global issues. The course will consist of a member of case studies, and the students must choose four in which to participate. Students will work in groups to research the topic using e-mail and discussion forums, and present their findings to the class using electronic classroom technology. Together the students will participate in a truly global seminar course.

NOTE: Fall semester

FORMAT: Lecture 3 hours (either through virtual classroom or on campus).
I. Undergraduate Degree Level Course Descriptions

INFB 1000.03: International Food Policy & Environment (INFB).

This course is taught along with ECUA1002 Introduction to Economic Reasoning as part of the International Food Business program in Module 1: Acquiring Knowledge of International Food Systems. Students will successfully complete a series of practical tasks/assignments while learning about the global food environment. Topics will include study of emerging country markets, policy formulation, and multilateral agreements.

NOTE: Fall Semester - Module #1 INFB

INFB 1001.03: International Food Business Project I (INFB).

This course is part of an underlying theme of the first year of the International Food Business Program. It allows students to integrate the work of the entire first year into a series of assignments and tasks embedded in international consumer behaviour and entrepreneurship. Students will learn about consumer behaviour applied to a new food product from Iceland and be tasked with preparing a Webpage highlighting the opportunities in both Europe and North America for the product. This is a year-long project concluding in International Food Business Project II.

NOTE: Fall Semester - Module #1 & #2 INFB

INFB 1002.03: International Food Business Project II (INFB).

This course is part of an underlying theme of the first year of the International Food Business Program. It allows students to integrate the work of the entire first year into a series of assignments and tasks embedded in international consumer behaviour and entrepreneurship. Students will learn about consumer behaviour applied to a new food product from Iceland and be tasked with preparing a Webpage highlighting the opportunities in both Europe and North America for the product. This is a year-long project originating in International Food Business Project I.

NOTE: Winter Semester - Module #1 & #2 INFB

INFB 1003.03: Introductory Second Language.

This course will be offered in The Netherlands by CAH Dronten as part of the International Food Business program. It is designed for an initial competency in spoken and written language. Students are ineligible to take a language course in which they are already fluent.

NOTE: Winter semester

I. Technology Level Course Description

INTA 0100.00: Internship.

The student will be required to work under contract with an approved employer in their chosen field for a period of at least 12 weeks (480 hours). Contract details will be relevant to the student’s area of study and will be negotiated between the student, the employer, and the course coordinator. Assessment will be based on this contract and will be carried out jointly by the employer and the course coordinator.

NOTE: Spring semester – 12 weeks.

FORMAT: 12 weeks.

PREREQUISITE: Successful completion of the first year in the Diploma in Business Management, plus Workplace Readiness courses.
Management

Below are course offered in Management by the Faculty of Agriculture. Please see the Faculty of Management Section for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

MGTA 1000.03: Small Business Entrepreneurship

This course provides students with an overview of small business management theory and practice presented from an entrepreneurial perspective. Topics discussed include identifying and evaluating new business opportunities, financing the business, marketing management, human resources, and financial management. Upon successful completion of the course, students will understand the elements of business planning required for successful small businesses today.

NOTE: Fall and Winter semesters

CROSS-LISTING: MGTA 0101

MGTA 1001.03: Introduction to International Business (INFB)

This course is taught along with ECOA1002 Introduction to Economic Reasoning as part of the International Food Business Program in Module 2: Analyzing Business Processes. Students will successfully complete a series of practical tasks/assignments while learning about essential aspects of international management. Topics will include the business task environment, organizational behaviour and operational management.

NOTE: Fall Semester - Module 2 INFB

MGTA 1002.03: Food Supply Chain Management (INFB)

This course is a part of Module 3 of the International Food Business program – Analyzing Food Chains. It provides students with an introduction to food supply chain management issues and developments. Topics include value chain development, consumer orientation, changing actors and factors, and logistics and distribution.

NOTE: Winter Semester - Module 3 INFB

MGTA 1003.03: International Business communications (INFB)

This course is a part of Module 4 of the International Food Business program – Developing External Communications Strategies. It provides students with an introduction to global business communications issues and applications. Topics include information and communication, intercultural aspects of communication, and cultural and international media techniques.

NOTE: Winter Semester - Module 4 INFB

MGTA 2000.03: Human Resource Management

An introduction to the human side of business organizations. The course focuses on the challenges of motivation, recruitment and selection, performance evaluation, compensation, and labour management relations.

NOTE: Fall and Winter semesters

FORMAT: Lecture 3 hours

CROSS-LISTING: MGTA 0201

MGTA 2001.03: Introduction to Business Law

An introduction to general principles of law relating to the management of a business. Major issues studied are torts and contracts. Specialized topics include forms of business organizations, sale of goods, conditional sales, real property, mortgages, tenancy, and wills.

NOTE: Winter semester

FORMAT: Lecture 3 hours

CROSS-LISTING: MGTA 0103

MGTA 2002.03: Marketing

Designed to introduce basic marketing principles and their application to marketing problems. Topics such as promotion, pricing, distribution, and marketing research are examined. The course method of instruction is used extensively. Class participation is a vital component of this course.

NOTE: Full semester

FORMAT: Lecture 4 hours

MGTA 2003.03: Financial Management (A)

Principles and methods of organizing and analyzing financial businesses are examined. Practical problems associated with financial analysis, planning, capital budgeting, revenue inc., and credit acquisition are included. The role of the financial manager is identified throughout.

NOTE: Fall semester

FORMAT: Lecture 4 hours, lab 2 hours

PREREQUISITE: MGTA 0204

CROSS-LISTING: MGTA 0203

MGTA 2004.03: Financial Accounting

A study of the basic principles and procedures relevant to the accounting function of a business firm. Topics discussed include recording transactions, making adjusting entries, preparing financial statements, accounting for a merchandising concern, computerized accounting software, accounting for cash, credit sales, and accounts receivable; inventories and cost of goods sold, and plant and equipment.

NOTE: Full semester

FORMAT: Lecture 3 hours, lab 2 hours

MGTA 2006.03: Advertising and Promotion

Students examine the process of planning, implementing, and evaluating advertising and promotional strategies for small businesses. Topics include an evaluation of conventional advertising media and web-based advertising, the preparation of customer profiles and target marketing, the creation of advertising copy, and the evaluation and monitoring of the advertising program. Case studies and class projects are essential elements of the course.

NOTE: Winter semester

FORMAT: Lecture 3 hours

PREREQUISITE: MGTA 0201

CROSS-LISTING: MGTA 0202

MGTA 2007.03: Retail Sales Management

Students examine effective sales techniques for a retail business and learn to use records systems for tracking sales performance. They also explore strategies for integrating front-line sales techniques with the overall marketing and promotional strategies for the business. The course will enable the student to track and interpret sales performance for the business, and to work with sales managers or consultants in identifying ways to improve sales performance.

NOTE: Winter semester

FORMAT: Lecture 3 hours

PREREQUISITE: MGTA 0201

CROSS-LISTING: MGTA 0203

MGTA 2008.03: Managing Retail Operations and Physical Resources

This course is designed to train students in the daily office, sales, and inventory operations important in managing a small business. The course also covers the requirements for the siting and layout of a retail facility, and the factors important in designing a retail space. The maintenance, safety, and security requirements for the retail operation are also considered.

NOTE: Full semester

FORMAT: Lecture 3 hours

PREREQUISITE: MGTA 0201

CROSS-LISTING: MGTA 0204

MGTA 2009.03: Customer Relations Management

The objective of this course is to provide students with a practical approach to the provision of exceptional customer service for a small business. Students are expected to identify the various factors that affect the provision of quality service and to identify ways to ensure client satisfaction. The course also provides training in point-of-sale techniques and complaint management.

NOTE: Full semester

FORMAT: Lecture 3 hours

CROSS-LISTING: MGTA 0203
MGTA 2010.03: Innovation Management (INFB).
This course is a part of Module 5A of the International Food Business program which is taught in The Netherlands. It provides students with an introduction to innovation management from an international perspective. Topics include innovation management, managing technology and knowledge, and managing research and development projects. This course is taught in The Netherlands.

NOTE: Fall Semester - Module 5A INFB

MGTA 2011.03: International Marketing Research (INFB).
This course is a part of Module 7A of the International Food Business program - Performing Market Research. It provides students with an introduction to marketing research in an international setting. Topics include the research process, primary and secondary data collection, and analyzing data. This course is taught in The Netherlands.

NOTE: Winter Semester - Module 7A INFB

MGTA 2012.03: Fundamentals of Management (INFB).
This course is a part of Module 1A of the International Food Business program in the third year of study - Performing as a Leader and Manager. It provides students with the basic management functions and their performance as a business leader. Topics include planning, organizing, leading and controlling. This course is taught in The Netherlands.

NOTE: Fall Semester - Module 1A INFB

MGTA 3000.03: Management Accounting.
This course is a part of Module 10A of the International Food Business program - Developing Business Plans. It provides students with an introduction to business planning from an international perspective. Topics include starting a new business, alternative start-up methods, managing growth, and business succession.

NOTE: Fall Semester - Module 10A INFB

MGTA 3001.03: International Marketing.
This course provides an introduction to international marketing and the international trading system. Students will be exposed to the unique aspects of international market research, selection, entry, pricing, and communications that differentiate them from their domestic equivalents. In addition, the international trading system will be examined with an emphasis on institutions such as the WTO and IMF and on international commodity agreements, which directly impact the movement of goods and services. Cases are used extensively in the course and class participation is vital.

NOTE: Winter semester

FORMAT: Lecture 3 hours, lab 2 hours.

PREREQUISITE: MGTA 2006

MGTA 3002.03: Consumer Behaviour.
The course introduces the student to the basics of consumer behavior and then applies this knowledge to the food marketing system. Topics covered include: consumer behavior, motivation, perception, learning, and decision-making. Historical and recent trends in product marketing, pricing, and advertising also form part of the course. Cases are used extensively and class participation is vital.

NOTE: Winter semester

FORMAT: Lecture 3 hours.

PREREQUISITE: MGTA 2002

MGTA 3003.03: European Placement I (INFB).
Students will broaden their experience of European business management by participating in a planned learning experience in an approved business or entrepreneurial venture. Based on their area of interest students will find placements in suitable businesses or other organizations and submit a work plan to the course coordinator and the host organization. Students will be required to keep a journal of the placement experience and to submit a report upon completion of the placement. The host organizations will evaluate students on their development of critical skills and abilities. Placements may be volunteer or paid positions, and cover three months at the end of the second year in The Netherlands.

NOTE: Spring/Summer semester

MGTA 3004.03: European Placement II (INFB).
Students will broaden their experience of European business management by participating in a planned learning experience in an approved business or entrepreneurial venture. Based on their area of interest students will find placements in suitable businesses or other organizations and submit a work plan to the course coordinator and the host organization. Students will be required to keep a journal of the placement experience and to submit a report upon completion of the placement. The host organizations will evaluate students on their development of critical skills and abilities. Placements may be volunteer or paid positions, and cover three months at the end of the second year in The Netherlands.

NOTE: Spring/Summer semester

MGTA 3005.03: New Product Development (INFB).
This course is a part of Module 4A of the International Food Business program which is taught in The Netherlands. It provides students with an introduction to new product development from an international perspective. Topics include new product development process, packaging, and managing the development team.

NOTE: Fall Semester - Module 4A INFB

MGTA 3006.03: Retail Management (INFB).
This course is a part of Module 5A of the International Food Business program - Retail Management which is taught in The Netherlands. It provides students with an introduction to retail management from an international perspective.

NOTE: Fall Semester - Module 5A INFB

MGTA 3007.03: Quality Management (INFB).
This course is a part of Module 6A of the International Food Business program - performing as a leader and manager which is taught in Canada. It provides students with an intermediate level of study in management from an international perspective.

NOTE: Winter Semester - Module 6A INFB

MGTA 3008.03: Intermediate Marketing Research (INFB).
This course is a part of Module 7B of the International Food Business program - performing marketing research which is taught in Canada. It provides students with an intermediate level research from an international perspective.

NOTE: Winter Semester - Module 7B INFB

MGTA 4000.03: Strategic Management.
This is a capstone course that will integrate all the business disciplines (marketing, finance, accounting, etc.) and prepare the student to formulate and implement strategy in an agribusiness setting. Students will be expected to gain a full understanding of the complexity and interrelationships of modern managerial decision making and apply this knowledge to real managerial problems. Lectures, case studies, projects, and guest speakers will be utilized.

NOTE: Fall semester

FORMAT: Lecture 3 hours.

PREREQUISITE: Students will normally be Agricultural Business majors who have successfully completed the first three years of the program

MGTA 4001.03: Advanced Entrepreneurship (A).
This course will apply the concepts of entrepreneurship to creating and managing a small business. Students will investigate opportunities for new agribusinesses and develop business plans that consider management structure, financing, production, marketing, and taxation. Lectures, case studies, guest speakers, and project assignments will be utilized.

NOTE: Winter semester

FORMAT: Lecture 3 hours, lab 3 hours.

PREREQUISITE: MGTA 2002, MGTA 2003, and at least third-year degree standing

MGTA 4002.03: North American Placement I (INFB).
Students will broaden their experience of North American business management by participating in a planned learning experience in an approved business or entrepreneurial venture. Based on their area of interest students will find placements in suitable businesses or other organizations and submit a work plan to the course coordinator and the host organization. Students will be required to keep
NOTE: Winter semester members. Projects started in MGTA 0020 will be completed in this course. An opportunity to examine, in detail, enterprise management topics. Projects are discussed include identifying and evaluating new business opportunities, pricing, promotion, distribution, and preparation of financial statements. Considerable time will be spent on Canadian income tax and a computerized accounting project.

NOTE: Full semester

FORMAT: Lecture 3 hours

PREREQUISITE: MGTA 0100

MGTA 0204.02: Human Resource Management.

Introduction to the human resource management function. The course covers the challenges of motivation, recruitment and selection, performance evaluation, compensation, and labour relations.

NOTE: Full and Winter semester

FORMAT: Lecture 5 hours

MGTA 0205.02: Marketing Management.

An introduction to marketing function of a business. Topics discussed include understanding the marketplace, customer behaviour, market research, and the preparation of market plans.

NOTE: Winter semester

FORMAT: Lecture 2 hours, lab 2 hours

PREREQUISITE: MGTA 0100

MGTA 0206.02: Financial Management (A).

Financial planning and management. Topics include financial statements, internal control, ratios, and the role of the financial manager.

NOTE: Full semester

FORMAT: Lecture 3 hours

MGTA 0207.02: Advertising and Promotion.

An introduction to the process of planning, implementing, and evaluating advertising and promotional strategies for small businesses. Topics include an introduction to marketing, target market identification, market research, and the preparation of market plans.

NOTE: Winter semester

FORMAT: Lecture 3 hours

PREREQUISITE: MGTA 0100 or MGTA 0206

MGTA 0208.02: Retail Sales Management.

Students examine the process of managing a retail business. Topics include store layout, sales floor management, customer service, and the preparation of market plans.

NOTE: Winter semester

FORMAT: Lecture 3 hours

PREREQUISITE: MGTA 0206

CROSS-LISTING: MGTA 2007
Mathematics

Below are courses offered in Mathematics by the Faculty of Agriculture. Please see the Mathematics Section in the Faculty of Science for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

MTHA 0050.02: Functions.
This is a one-semester non-credit course designed for those who do not have the requisite skills for the first-year mathematics courses but have shown sufficient basic mathematical ability to warrant a one-semester course to make up for the deficiencies. This course will emphasize the study of the basic functions used in the sciences. Topics to be covered include linear, exponential, logarithmic, and trigonometric functions. Emphasis is placed on use of a graphing calculator. MTHA 0050 is not intended to duplicate or replace Grade 12 Pre-Calculus Mathematics.
NOTE: Fall semesters
FORMAT: Lecture 3 hours, tutorial 1 hour
PREREQUISITE: Eligibility for admission to this course by means of a mathematics diagnostic test, or approval of the Registrar

MTHA 1000.03: Introductory Calculus I.
Topics will include functions and their inverses, limits, differentiation of polynomial, trigonometric, exponential, and logarithmic functions, product and quotient rules, and implicit differentiation, with applications to curve sketching, maxima and minima problems, and velocity and acceleration problems. This course also includes an introduction to anti-derivatives and applications of the definite integral to a variety of problems. Students are required to confirm their eligibility for admission to this course by means of a mathematics diagnostic test, to be taken the day following registration. Students not admitted must take MTHA 0050.
NOTE: Fall and Winter semesters
FORMAT: Lecture 3 hours, tutorial 1 hour
PREREQUISITE: Grade 12 PreCalculus Mathematics or MTHA 0050

MTHA 1001.03: Introductory Calculus II.
A continuation of the study of calculus with topics including both the definite and indefinite integral, techniques of integration, with applications to areas, volumes, arc length, surface areas, elementary differential equations and their applications. The course may also include parametric equations and polar coordinates, and sequences and series and their applications.
NOTE: Fall and Winter semesters
FORMAT: Lecture 3 hours, tutorial 1 hour
PREREQUISITE: MTHA 1000

MTHA 1002.03: Business Math. (INFB)
This course introduces the basic mathematical skills needed to understand, analyze, and solve mathematical problems encountered in business, finance, and investment decision-making. Students are expected to be able to understand and perform arithmetic and algebraic operations.
NOTE: Full semester
FORMAT: Lecture 3 hours, tutorial 1 hour
PREREQUISITE: MTHA 1001

MTHA 2000.03: Multivariable Calculus.
This course covers functions of several variables: vectors, dot product, cross product, differentiation and integration of vector-valued functions, space curves, partial derivatives, optimization, multiple integrals and their applications, vector fields, line integrals, flux integrals, divergence and curl, Stokes Theorem, and the Divergence Theorem.
NOTE: Full semester
FORMAT: Lecture 4 hours, lab 2 hours per week
PREREQUISITE: MTHA 1001

MTHA 2001.03: Differential Equations.
This course introduces the basic theory of differential equations, considers various techniques for their solution, and looks at various applications. Topics include First-Order Linear and Non-Linear differential equations, differential equations of higher order, Laplace Transforms, series solutions, systems of equations, and Fourier Series. Topics from Linear Algebra are included as required to solve systems of differential equations. Linear Algebraic equations, matrices and vectors, eigenvalues and eigenvectors, and solutions to both homogeneous and nonhomogeneous systems.
NOTE: Winter semester
FORMAT: Lecture 4 hours, tutorial 2 hours per week.
PREREQUISITE: MTHA 1001

MTHA 3000.03: Applied Linear Algebra.
This course covers geometric vectors in three dimensions, dot product, lines and planes, complex numbers, systems of linear equations, matrix algebra, matrix inverse, determinants. Course’s role: introduction to vector spaces, linear independence and bases, rank, linear transformations, orthogonality and applications, Gram-Schmidt algorithm, eigenvalues and eigenvectors.
NOTE: Winter semester
FORMAT: Lecture 3 hours, lab 2 hours.

MTHA 4000.03: Agricultural Modelling.
The aim of the course is to teach agricultural students when and how to attempt to express their ideas mathematically, and how to solve the resulting mathematical model and compare its predictions to experimental data. Topics include techniques of creating a model, techniques of solving models, testing and evaluating models, growth models, and a directed study project of an example of a model used in the agricultural sciences.
NOTE: Winter semester
FORMAT: Lecture 6 hours, tutorial 1 hour
PREREQUISITE: MTHA 1001 and at least third-year standing

II. Technology Level Course Descriptions

MTHA 0100.02: Business Math.
This course introduces the basic mathematical skills needed to understand, analyze, and solve mathematical problems encountered in business, finance, and investment decision-making. Students are expected to be able to understand and perform arithmetic and algebraic operations.
NOTE: Full semester
FORMAT: Lecture 3 hours, tutorial 1 hour
Below are courses offered in Microbiology by the Faculty of Agriculture. Please see the Microbiology and Immunology Section in the Faculty of Science for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

MCRA 2000.03: Microbiology.
A general introduction to microbiology. Topics include history, morphology, structure, cultivation, reproduction, metabolism, genetics, classification, and control of microorganisms. The importance of microorganisms to soil productivity, foods, industry, veterinary science, public health, and sanitation is discussed. Students are required to have laboratory coats.

NOTE: Winter semester

FORMAT: Lecture 3 hours; Lab 3 hours

PREREQUISITE: Preparatories: BIOA 1002, BIOA 1003

MCRA 3000.03: Food Microbiology (A).
A study of microorganisms involved in the production and processing of food products. Topics will include the use of microorganisms for food production and processing, food spoilage and potential for food poisoning, and sanitation procedures, including government regulations and standards for the food industry. The use of conventional plating as well as rapid assay techniques will be discussed.

NOTE: Fall semester

FORMAT: Lecture 3 hours; Lab 3 hours

PREREQUISITE: MCRA 2000

MCRA 4000.03: Soil Microbiology (A).
A study of the biology of the various classes of microorganisms in soil, including bacteria, blue-green algae, fungi, algae, protozoa, and viruses. This course includes details of biochemical transformation of carbon, nitrogen, sulfur, and phosphorus, as well as pesticides and toxins in the environment.

NOTE: Full semester

FORMAT: Lecture 3 hours; Lab 3 hours

PREREQUISITE: MCRA 2000, SOIL 2000

CROSS-LISTING: AGRI 5230

Nutrition

I. Undergraduate Degree Level Course Descriptions

NUTR 3000.03: Animal Nutrition (A).
A study of the principles of nutrition, including the digestion, absorption, and metabolism of nutrients by domestic animals. Functions of protein, lipids, carbohydrates, vitamins, and minerals are studied.

NOTE: Full semester

FORMAT: Lecture 3 hours, lab 2 hours.

PREREQUISITE: CHMA 2000

Classification and characteristics of feeds and regulations governing their use are described. Methodology for evaluating the relative merits of typical feeds and rations is discussed. The principles of nutrition are applied in the formulation of rations for monogastric, avian, and ruminant species.

NOTE: Winter semester

FORMAT: Lecture 3 hours, lab 2 hours.

PREREQUISITE: NUTR 3000

NUTR 3002.03: Fish Nutrition (A).
Nutrients required by finfish, shellfish, crustaceans, and molluscs are discussed in context with current and future sources of these nutrients. Digestive physiology and specific feeding problems of aquatic species are addressed. Diet formulations and feeding strategies for maintenance, growth, and reproductive performance of fish are covered.

NOTE: Winter semester

FORMAT: Lecture 3 hours, lab 2 hours.

NUTR 4000.03: Ruminant Digestive Physiology and Metabolism.
This course is designed to provide an intensive study of food intake and digestion, and nutrient absorption and metabolism, in the ruminant animal. The course details current knowledge and focuses on aspects of future research interest. Students are expected to contribute to discussions and present reviews to the class on various aspects of the subject.

NOTE: Full semester

FORMAT: Lecture 3 hours, lab 2 hours. Offered in alternate years; next offered in 2015/2016.

PREREQUISITE: BIOA 2006, CHMA 3006, NUTR 3000

CROSS-LISTING: AGRI 5620
Below are courses offered in Physics by the Faculty of Agriculture. Please see the Physics Section in the Faculty of Science for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

PHYS 0050.00: Introductory Physics.
An introductory non-credit course for entering students who do not have the equivalent of NS Grade 12 Physics. Course topics include one-dimensional kinematics, vector theory, Newton's Laws, equilibrium, kinetic energy and work, and other topics as determined by a review of the class. PHYS 0050 is not intended to duplicate or replace Grade 12 Physics.
NOTE: Fall and Winter semesters
FORMAT: Lecture 3 hours, tutorial 1 hour
PREREQUISITE: Approval of the Registrar

PHYS 1000.03: Physics for the Life Sciences I.
In this course an understanding of physics is acquired by exploring the physical principles that underlie complex biological structures. The nature of materials and the forces that act on them is introduced through a series of topic examples taken from evolution, mammalian physiology, plant structure, and others.
NOTE: Fall and Winter semesters
FORMAT: Lecture 3 hours, lab/tutorial 1½ hours (alternating weekly).
PREREQUISITE: Grade 12 Physics or PHYS 0050, Prerequisite/Corequisite: MTHA 1000
EXCLUSION: Students may take either PHYS1000 or PHYS1002, but not both, for credit.

PHYS 1001.03: Physics for the Life Sciences II.
In this course the physical principles underlying perception throughout the animal kingdom are introduced. The examples chosen emphasize adaptation and strategies (e.g., echolocation and noctuid moths) and represent a wide range of forms (e.g., eyes of the common scallop pecten, electric location by the fish Gymnarchus niloticus).
FORMAT: Lecture 3 hours, lab/tutorial 1½ hours per week (alternating weekly).
PREREQUISITE: PHYS 1000 or PHYS 1002

PHYS 1002.03: Physics I.
Fundamental physical principles that are necessary for the understanding of the agricultural sciences form the core material of this course. Classical physics topics include vector analysis, dynamics, statics, fluid mechanics, acoustics, and heat. Concepts derived from modern physics are added in order to complete the classical theories. Weekly student laboratory sessions allow for direct investigation of the theories studied in the course. Students may take either PHYS1000 or PHYS1002, but not both, for credit.
NOTE: Fall and Winter semesters
FORMAT: Lecture 3 hours, lab 1½ hours, tutorial 1 hour
PREREQUISITE: Grade 12 Physics or PHYS 0050, Prerequisite/Corequisite: MTHA 1000

PHYS 1003.03: Physics II.
A continuation of PHYS 1002. The course mainly deals with electromagnetic theory, including such topics as electric charges, fields, potential, magnetic theory, induction, and Maxwell's Equations. Fundamental wave theory and optics are also studied, together with an introduction to nuclear physics. The laboratory provides an opportunity to investigate the theories in a hands-on environment.
NOTE: Winter semester
FORMAT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: PHYS 1002

Below are courses offered in Philosophy by the Faculty of Agriculture. Please see the Philosophy Section in the Faculty of Arts and Social Sciences for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

PHLA 3000.03: Environmental and Agricultural Ethics (H).
This course offers a general introduction to environmental ethics with emphasis on agricultural issues. Students will be introduced to modern ethical theory and to techniques of philosophical reasoning, and will be provided with a general context for overall discussion by examining the origins of the modern world view (the rise of modern science, market economics, and liberalism). Students will be evaluated on class participation and a series of short weekly essays based upon directed readings and field experience. Essay-style midterm and final exams are required.
NOTE: Winter semester
FORMAT: one 2-hour seminar per week.
PREREQUISITE: At least third-year standing
Psychology

Below are courses offered in Psychology by the Faculty of Agriculture. Please see the Psychology Section in the Faculty of Science for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

**PSYC 1000.03: Introductory Psychology I (H).**
This course will introduce students to the mental processes that underlie human behaviour. Topics covered include brain function, the nervous system, sensation, perception, states of consciousness, learning, memory and cognition. The course will be taught primarily through lecture and in-class demonstrations and activities.
NOTE: Fall semester
FORMAT: Lecture 3 hours.

**PSYC 1001.03: Introductory Psychology II (H).**
This course will introduce students to important elements that describe, explain, predict, and influence human behaviour. Topics covered include human development, emotion, social influences, personality, health, psychological disorders, and therapy. The course will be taught primarily through lecture and in-class demonstrations and activities.
NOTE: Full semester
FORMAT: Lecture 3 hours.

Political Science

Below are courses offered in Political Science by the Faculty of Agriculture. Please see the Political Science Section in the Faculty of Arts and Social Sciences for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

**POLS 1000.03: Introduction to Political Science (H).**
An introductory study of the ideologies of modern movements. Liberal democracy, conservatism, democratic socialism, fascism, and Marxist perspectives will be covered. Analysis of such central concepts as liberty, equality, power, authority, justice, law, constitutionalism, democracy, and authoritarianism will be presented and discussed. This course provides an overview of the various institutions and policies involved in governing. There will be a focus on rural social movements.
NOTE: Fall semester
FORMAT: Lecture 3 hours.

**POLS 1001.03: Structure and Function of Government (H).**
Students will study the legislative, executive, and judicial aspects of the Canadian state, and their interactions. They will look at political processes and policy development. This course will provide students with the basic knowledge of how governments operate at all levels. It will offer insight into how and why political decisions are made about the issues that affect all Canadians: taxation, education, employment, health care, and the debt. There will be a focus on issues of interest to rural Canada.
NOTE: Winter semester
FORMAT: Lecture 3 hours.
Plant Science

I. Undergraduate Degree Level Course Descriptions

PLSC 1000.03: Farm Woodlot Management (A).
This course will focus on the importance of privately owned woodlands to the landowner, the forest industry, and the agricultural sector. It will examine forest ecology, tree identification, forest measurement, aerial photo interpretation, and forest management practices including silviculture. The course will review Christmas tree and maple syrup production. The role of appropriate equipment and machinery in the woods will also be discussed. A field lab will be held weekly. Steel-toed boots and hard hats are required.
NOTE: Fall semester – this course has limited enrollment.
FORMAT: Lecture 3 hours, lab 3 hours.
PLSC 2000.03: Specialty Crops (A).
This course will examine opportunities for specialty crop production, using an entrepreneurial approach. A core group of specialty crops will be examined.
Production requirements, production and marketing potential, and use, and value adding will be studied. Students will have optional crop choices to reflect individual interest. A major project is required.
NOTE: Winter semester.
FORMAT: Lecture 3 hours, lab 2 hours.
PLSC 3000.03: Theory and Practice of Plant Propagation (A).
This course is intended to give students an advanced knowledge in the area of biology, physiology and practical aspects of plant propagation. It is strongly recommended for students wishing to undertake graduate work in plant sciences, biotechnology, environmental sciences, and ecology. It is also recommended for managers of greenhouses and nurseries. Topics will include biology of plant propagation, propagation environment, breeding systems, seed and vegetative propagation, soil and tissue micropropagation, and propagation of selected plant species for commercial production.
NOTE: Winter semester.
FORMAT: Lecture 3 hours, lab 3 hours.
PLSC 4000.03: Plant Breeding (A).
An introduction to the principles and practices of plant breeding, including the genetics of agriculturally important traits, germplasm conservation, breeding bio-technology, and the structure of the Canadian seed industry.
NOTE: Winter semester.
FORMAT: Lecture 3 hours, lab 2 hours. Offered in alternate years; next offered in 2015/2016.
PLSC 4002.03: Plant Ecophysiology (A).
This course is designed to stimulate interest, critical thinking, and investigative processes for the understanding of growth, development, water relations, and plant structure at the cellular level. The purpose of the course is to give the student an understanding of how plants respond to their environment, both biotic and abiotic factors.
NOTE: Fall semester.
FORMAT: Lecture 3 hours, lab 3 hours.
PREREQUISITE: BIOA 2002, one crop production course.
PLSC 4003.03: Problem Solving in Plant Science (A).
The objective of this course is to review and integrate material from prerequisite courses in crop production, environment, business, soils, climate, and basic sciences into a comprehensive understanding of crop management systems. Students will work with each other and the instructor to develop group and individual study plans and learning contracts to address individual needs to fill gaps in knowledge and skills in Plant Science. Activities and assignments will be tailored to the needs of the group and the individuals.
NOTE: Winter semester.
FORMAT: Lecture 3 hours.
PREREQUISITE: Fourth-year standing in Plant Science major or minor.
PLSC 4004.03: Root Physiology Underground Secrets (A).
The objective of this course is to give students a fundamental understanding of the mysteries of the hidden half of plants roots. The architectural, physiological, metabolic and ecological significance of roots is often overlooked, frequently forgotten or ignored. Students will study the intricacies of root architecture, growth, development, physiology and the role of roots in plant defense. Attention is given to the soil ecosystem and how roots respond to their environment. Students will also learn about root derived secondary metabolites and the roles in plant and human health, and appreciate the emerging opportunities in “milking roots”.
NOTE: Winter semester.
FORMAT: Lecture 3 hours, lab 2 hours. Offered in alternate years; next offered in 2015/2016.
II. Technology Level Course Descriptions

PLSC 0100.02: Utilization of Plant Resources.
Using an integrated systems approach, students are introduced to the principles and practices involved in the sustainable production of crop plants. Practical exercises will give the students an opportunity to gain knowledge and skills involved in economic and environmental growing of agronomic and horticultural crops.
NOTE: Winter semester.
FORMAT: Lecture 3 hours, lab 2 hours.
PLSC 0200.02: Plant Propagation.
This course studies physiological and anatomical bases of plant propagation, and techniques of sexual and asexual propagation of agricultural and horticultural crops as well as landscape plant material and herbaceous perennials. Propagation structures, containers, media and sanitation, polyethylene, seed production, and in vitro techniques for micropropagation are also components of this course.
NOTE: Winter semester.
FORMAT: Lecture 2 hours, lab 3 hours.
PLSC 0201.02: Plant Science Techniques.
This course is intended to give students an advanced knowledge in the area of biology, physiology and practical aspects of plant propagation. It is strongly recommended for students wishing to undertake graduate work in plant sciences, environmental sciences, and ecology.
NOTE: Winter semester.
FORMAT: Lecture 3 hours, lab 3 hours.
PLSC 0202.02: Plant Science Techniques.
This is a Spring semester course intended for students in the Plant Science Technology program following their first year of study. Students will be required to work under contract in an area of Plant Science with an approved employer for a period of at least 12 weeks (480 hours). Contract content will be relevant to the student’s area of study and will be negotiated between the employer, the course coordinator, and the student. Assessment will be based on this contract and will be carried out jointly by the employer and the course coordinator.
NOTE: Spring semester.
FORMAT: 12 weeks.
PREREQUISITE: Completion of the first year of the Plant Science Technology program.
Research Methods/Project Seminars

I. Undergraduate Degree Level Course Descriptions

RESM 4000.03: Bio-Environmental Systems
Management Project-Seminar I (A).
Students will study an operation (information gathering) and review management of technological, human, financial, and environmental resources. A group report and individual oral and poster presentations are required.

NOTE: Winter semester
FORMAT: Seminar 3 hours per week
PREREQUISITE: Integrated Environmental Management student in third year, or consent of the coordinator

RESM 4001.03: Bio-Environmental Systems
Management Project-Seminar II (A).
This is a continuation of RESM 4000, with a study and examination of identified problems within the operation. Working with industry representatives, the course will identify alternatives to solve current problems. Written and oral reports are presented to class and industry.

NOTE: Fall semester
FORMAT: Lab 4 hours
PREREQUISITE: RESM 4000; Integrated Environmental Management student in final year or consent of the coordinator

RESM 4002.03: Animal Science Project-Seminar I (A).
In consultation with a faculty advisor, Animal Science majors select a research topic. This topic is investigated and presented orally and in a written report. Other topics of current interest are also presented and discussed in the weekly seminar period.

NOTE: Fall semester
FORMAT: Seminar 2 hours
PREREQUISITE: Animal Science major in third or fourth year of the program, or consent of the coordinator

RESM 4003.03: Animal Science Project-Seminar II (A).
The continuation and conclusion of the project selected in RESM 4002.

NOTE: Winter semester
FORMAT: Seminar 2 hours
PREREQUISITE: RESM 4002

RESM 4004.03: Research Methods for Economics and Business (A).
The lectures cover general methodological issues within business and social sciences research, as well as considering specific research techniques. Students undertaking fourth-year projects within the Department of Business and Social Sciences begin their projects, under faculty supervision, through this course’s project development process. Other students may instead write one or more papers on research methodology.

NOTE: Winter semester
FORMAT: Lecture 2 hours; lab 2 hours
PREREQUISITE: At least third-year standing, including ECOA 1000

RESM 4005.03: Project-Seminar for Economics and Business (A).
Under the supervision of faculty, students complete the research projects begun in RESM 4004. Each student is required to submit the first draft for evaluation by faculty. The student presents a final report and participates in peer evaluation of the presentations of the other students.

NOTE: Winter semester
FORMAT: Seminar 2 hours
PREREQUISITE: RESM 4004

RESM 4006.03: Environmental Sciences Project-
Seminars I (A).
A required course for all B.Sc.(Agr.) students registered in the Department of Environmental Sciences. Each student will choose a research project and faculty advisor in consultation with the course coordinator. Each student will present regular oral and written reports on their subject of investigation. Other written and seminar topics may be assigned. Topics on communication skills and the presentation of scientific information in various formats will be discussed in the weekly seminar periods.

NOTE: Full semester
FORMAT: Seminar 2 hours
PREREQUISITE: Students registered for their final year in the Department of Environmental Sciences, or consent of the coordinator

RESM 4007.03: Environmental Sciences Project-
Seminars II (A).
A required course for RESM 4006. Students will continue with their research projects. The course will culminate in the presentation of project results, in several formats. Other written and seminar topics may be assigned.

NOTE: Winter semester
FORMAT: Seminar 2 hours
PREREQUISITE: RESM 4006

RESM 4008.03: Plant Science Project-Seminar I (A).
This topic is investigated and presented both orally and in a written report. Other topics of current interest are also presented and discussed in the weekly seminar period.

NOTE: Fall semester
FORMAT: Lecture 2 hours
PREREQUISITE: RESM 4008

RESM 4009.03: Plant Science Project-Seminar II (A).
The continuation and conclusion of the subject selected in RESM 4008. This course consists of both a written and an oral presentation of the project.

NOTE: Fall semester
FORMAT: Lecture 2 hours
PREREQUISITE: RESM 4008

RESM 4010.03: Aquaculture Project-Seminar I (A).
In consultation with a faculty advisor, each student will select a research topic. This topic is investigated and presented both orally and in a written report. Other topics of current interest are also presented and discussed in the weekly seminar period.

NOTE: Full semester
FORMAT: Seminar 2 hours
PREREQUISITE: Aquaculture major in third or fourth year of the program, or consent of the coordinator

RESM 4011.03: Aquaculture Project-Seminar II (A).
The continuation and conclusion of the project selected in RESM 4010. This course consists of both a written and an oral presentation of the project.

NOTE: Winter semester
FORMAT: Seminar 2 hours
PREREQUISITE: RESM 4010
Rural Studies

I. Undergraduate Degree Level Course Descriptions

RURS 3000.03: Rural Community Economic Development (H).
This course examines the evolution of key paradigms, theories and principles in the field of rural community development studies, and explores the economic and social contexts in which rural community development has emerged. It also examines the community development process and the organizations, processes and strategies associated with rural community organization and development. A key aspect of the course will be an exploration of the defining characteristics of rural communities (e.g. co-operatives), as well as their diversity in current and historical social and economic contexts.

NOTE: Winter semester
FORMAT: Lecture 3 hours.
PREREQUISITE: At least third-year standing

Sociology

Below are courses offered in Sociology by the Faculty of Agriculture. Please see the Sociology and Social Anthropology Section in the Faculty of Arts and Social Sciences for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

SOCI 1000.03: Introductory Sociology (H).
An introduction to the field of modern sociology. Themes addressed in the course are sociological theory and method, social process, social organization, social institutions, social differentiation, and social change. Discussion will include social issues, e.g., rural/urban conflict, an aging society, and family changes. Some emphasis will be given to rural social problems.

NOTE: Fall semester
INSTRUCTOR(S): Prof. Dukeshire
FORMAT: Lecture 3 hours per week.

SOCI 1001.03: Introductory Sociology II (H).
The study of social issues uses sociological theory and research to examine social dynamics and social consequences associated with various current concerns. The topics covered will vary from year to year, but may well include problems such as gender and race relations, child and spousal abuse, substance abuse, poverty, work and alienation, and environmental issues. There will be a focus on issues of interest to rural Canada.

NOTE: Winter semester
INSTRUCTOR(S): Prof. Dukeshire
FORMAT: Lecture 3 hours per week.

SOCI 3000.03: Rural Sociology (H).
This course provides a focus on rural sociological themes, particularly in the Canadian and Atlantic region context. Themes addressed include: the theory and nature of rural social change; rural communities and response to forces of change; environmental issues and their links to society; the social implications of economic and political change for rural Canada.

NOTE: Fall semester
INSTRUCTOR(S): I. Landry
FORMAT: Seminar 3 hours per week.
PREREQUISITE: SOCI 1000

100 Rural Studies
I. Undergraduate Degree Level Course Descriptions

General principles of soil science relating to the origin, development, and classification of soils, and the biological, physical, and chemical properties of soils and their relation to proper soil and crop management, land use, and soil conservation.
NOTE: Fall semester
FORMA T: Lecture 3 hours, lab 3 hours.
PREREQUISITE: Corequisite: CHMA 1001

SOIL 3000.03: Soil Fertility and Nutrient Management (A).
The study of the soil chemical environment as it affects crop production. The course investigates the biogeochemical cycling of nitrogen, phosphorus, potassium, calcium, magnesium, sulphur, and micronutrients in crop production. It considers the use and management of supplemental nutrients in both conventional and certified organic production. Soil pH and other factors that influence soil fertility, directly or indirectly, are also discussed. Labs take the form of problem-solving tutorials on nutrient management.
NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours.
PREREQUISITE: SOIL 2000; preparatory: BIOA 2002

SOIL 3001.03: Soil Conservation in Agriculture (A).
A study of the processes of soil degradation and its prevention or amelioration. A major part of the course concerns the erosion of agricultural soils and its control. Other topics include soil compaction and soil salinization, soil reclamation, use of soil in waste recycling, and the role of soil in water conservation. Lab periods may be used for field trips, tutorials, or seminars.
NOTE: Fall semester
FORMA T: Lecture 3 hours, lab 3 hours. Offered in alternate years; next offered in 2014/2015.
PREREQUISITE: AGRI 1000

SOIL 4000.03: Environmental Soil Chemistry.
A study of chemical composition of soils (soil acidity, oxidation-reduction, ion exchange, adsorption-desorption reactions, clay mineralogy, and organic matter transformations) in the context of environmental soil chemistry. Labs and seminar-discussions integrate basic soil chemical principles with problems in waste disposal, metal contamination, nutrient leaching, pesticide degradation, etc.
NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours. Offered in alternate years; next offered in 2015/2016.
PREREQUISITE: SOIL 2000
CROSS-LISTING: AGRI 5450

SOIL 4001.03: Directed Studies in Soil Science (A).
Directed studies involve a suitable combination of directed reading, written assignments, individual study, or laboratory research projects in the area of soil science. Classes are organized and scheduled by appropriate faculty via a course coordinator. Students should approach potential instructors directly with their requests.
NOTE: Fall or Winter semester
FORMA T: as arranged.
PREREQUISITE: SOIL 2000 and 20 degree credits

II. Technology Level Course Descriptions

SOIL 0100.02: Principles of Soil Science.
Designed to form a basis for the understanding of soil productivity, the course investigates the physical, chemical, and biological properties of soil. Laboratory exercises, using soils from the Atlantic region, illustrate the lecture material and introduce methods of soil analysis.
NOTE: Full semester
FORMA T: Lecture 3 hours, lab 2 hours.

SOIL 0200.02: Soil Management.
A study of the chemical, physical, and biological properties of soil as they relate to crop production. Soil fertility and fertilizer use, tillage and water management, and biological husbandry are discussed. Labs take the form of problem-solving tutorials in soil management.
NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 2 hours.
PREREQUISITE: SOIL 0100
Spanish

Below are courses offered in Spanish by the Faculty of Agriculture. Please see the Spanish Section in the Faculty of Arts and Social Sciences for courses offered on the Halifax campuses.

I. Undergraduate Degree Level Course Descriptions

SPNA 1000.03: Basic Spanish I (H).
This course is designed to offer an initial competency in spoken and written Spanish. Comprehension, reading, writing, and conversation are encouraged throughout the course. An introduction to basic grammar is offered. Anglophone, francophone, and International students are encouraged to take this course. Students whose first language is Spanish will not be eligible.
NOTE: Fall semester
FORMAT: Lecture 3 hours.

SPNA 1001.03: Basic Spanish II (H).
This course is designed for anglophone, francophone and International students. It is a continuation of SPNA 1000, with emphasis on comprehension, conversation, reading, and writing.
NOTE: Winter semester
PREREQUISITE: SPNA 1000

Special Topics

I. Undergraduate Degree Level Course Descriptions

SPEC 2000.03: Topics in Economics and Business Management (A).
An opportunity for students throughout the University to study introductory topics defined by an individual student, a group of students, or faculty. The course is conducted by classes, tutorials, assigned readings, assignments and/or other appropriate activities. Topics must be supervised by a faculty member and approved by the department head.
NOTE: Fall, Winter or Summer semester
FORMAT: as arranged.

SPEC 2001.03: Topics in International Development (A).
An opportunity for students to study introductory topics in international development, with a focus on agriculture and rural development. Topics may be defined by the individual student, a group of students, or faculty. The course is conducted by classes, tutorials, assignments, readings, and/or other appropriate activities. Students are encouraged to use international travel or study opportunities as a focus for the course, but this is not required. Topics must be supervised by a faculty member in the proposed area of interest, and approved by the Department Head of Business and Social Sciences. Students must apply to the Department Head at least six weeks before the semester start date.
NOTE: Fall, Winter or Summer semester
FORMAT: as arranged.

SPEC 4000.03: Special Topics in Animal Science or Aquaculture.
This is an opportunity to study a special topic in the area of animal science or aquaculture as defined by an individual student, group of students or faculty. The course is conducted by tutorials, assigned readings, assignments, field trips and/or other appropriate activities. The special topics would normally be supervised by a faculty or staff member associated with the Animal Science program or the Aquaculture program and approved by the department head.
NOTE: Fall or Winter semester
FORMAT: as arranged.
PREREQUISITE: Two years of full-time study at a post-secondary institution (normally 20 degree courses), and permission of the instructor

SPEC 4005.03: Special Topics in Agricultural Economics and Business I (A).
An opportunity to study a special topic in the area of agricultural economics and business as defined by an individual student, a group of students, or faculty. The course is conducted by tutorials, assigned readings, assignments, and/or other appropriate activities. Special topics must be supervised by a faculty member and approved by the department head.
NOTE: Fall, Winter or Summer semester
FORMAT: as arranged.
PREREQUISITE: 30 degree courses

SPEC 4006.03: Special Topics in Agricultural Economics and Business II (A).
A second special topics course provides additional opportunity for students to individualize their program with in-depth study of an approved topic. Although the second topic selected may be in a similar area of interest to that studied in SPEC 4005, it must be sufficiently distinct to warrant additional study. Special
topics must be supervised by a faculty member and approved by the department head.
NOTE: Fall, Winter or Summer semester
FORMA T: as arranged.
PREREQUISITE: 20 degree courses or enrollment in the B.Tech (Env. Hort.)
SPEC 4010.03: Special Topics in Plant Science I (A).
An opportunity to study a special topic in the area of plant science as defined by an individual student, a group of students, or faculty. The course is conducted by tutorials, assigned readings, writing assignments, and/or other appropriate activities. Special topics must be supervised by a faculty member and approved by the department head.
NOTE: Fall, Winter or Summer semester
FORMA T: as arranged.
PREREQUISITE: 20 degree courses or enrollment in the B.Tech (Env. Hort.)
SPEC 4012.03: Directed Studies in Agricultural Engineering I (A).
Independent studies are developed through literature review or laboratory or field research on topics pertinent to agricultural engineering. Topics must be supervised by a faculty member and approved by the department head.
NOTE: Fall or Winter semester
FORMA T: as arranged.
PREREQUISITE: 20 degree courses

Statistics

Below are courses offered in Statistics by the Faculty of Agriculture. Please see the Statistics Section in the Faculty of Science for courses offered on the Halifax campus.

I. Undergraduate Degree Level Course Descriptions

STAA 2000.03: Introduction to Statistics.
Graphical presentation of data, descriptive statistics; normal, binomial, t and F distributions; sampling distributions and the central limit theorem; estimation and hypothesis testing of a single mean and the difference between two means; and introduction to correlation, regression and analysis of variance for simple experimental designs.
NOTE: Fall and Winter semesters
FORMA T: Lecture 3 hours, tutorial 1 hour, computer lab 1 hour per week.
This calculus-based first course in probability and statistics is designed to interact with the major disciplines within engineering. Topics include descriptive statistics, mathematics of probability, random variables and probability distributions, estimation, hypothesis testing, linear regression and correlation, and introduction to analysis of variance. Problem-solving skills in material related to engineering will be emphasized.
NOTE: Winter semester
FORMA T: Lecture 3 hours, tutorial 1 hour, lab 1 hour per week.
STAA 3000.03: Introduction to Planned Studies: Surveys and Experiments.
This course is a continuation of STAA 2000. Topics covered include sampling techniques, simple and multiple linear regression, analysis of variance for completely randomized and randomized block designs, nonparametric tests, and introduction to categorical data analysis.
NOTE: Winter semester
FORMA T: Lecture 3 hours, tutorial 1 hour, computer lab 1 hour per week.
STAA 4000.03: Intermediate Statistical Methods.
Analysis of single-factor experiments, randomized blocks, latin squares, and factorial and two-level fractional factorial designs.
NOTE: Fall semester
FORMA T: Lecture 3 hours, computer lab 1 hour
Veterinary Technology

I. Technology Level Course Descriptions

VTEC 0034.02: Externship in Specialty Field. This course is designed to encourage the student to pursue the practical application of special interests in Veterinary Technology that would not be addressed in the externships in general practice or at the Atlantic Veterinary College. The externship is customized to the venue and contracted in a manner similar to the general practice externship.

NOTE: Typical institutions that sponsor this optional externship are: farm animal or exotic veterinary practices, intensive care and emergency clinics, specialty veterinary clinics, zoos, humane societies, and research facilities.

VTEC 0111.02: Animal Medicine and Nursing I. This is the first in a stream of medicine and nursing courses designed to enable the student to grasp the principles and practices of veterinary medical, surgical, and related clinical skills. In conjunction with other courses in the Veterinary Technology Program and the related internship and externships, these courses equip the graduate to perform entry-level clinic tasks in the veterinary practice workplace. Topics include animal handling and restraint, drug routes, prescription, control and narcotic drugs, vaccines and vaccination, anesthesia, surgical preparation, radiography principles and processing, and clinical calculations.

NOTE: Full semester
FORMA T: Lecture 3 hours.

VTEC 0112.02: Clinical Exercises I. This is the first in a stream of clinical exercises courses designed to enable the student to practice medical, surgical, and related clinical skills. In conjunction with other courses in the Veterinary Technology Program and the related internship and externships, these courses equip the graduate to perform entry-level clinical tasks in the veterinary practice workplace. Animal care and maintenance duties are in addition to the scheduled hours in this course. Task areas included in this course are: animal and facilities maintenance, drug administration, common clinical equipment, anesthesiology, surgical preparation, and radiography.

NOTE: Full semester
FORMA T: Lecture 1 hour, lab 4 hours

VTEC 0113.02: Veterinary Clinical Pathology I. This is the first in a stream of theory and practical clinical pathology courses designed to enable the student to perform, and cognitively grasp the principles of, essential tasks in the in-house veterinary practice laboratory. In conjunction with other courses in the Clinical Pathology stream and the related internship and externships, these courses equip the graduate to perform entry-level diagnostic tasks in the veterinary practice workplace. Task areas and topics included in this course are: microscopy, practical parasitology, urinalysis, the microhematocrit, hematocrit, and the red blood cell, and initial blood film assessment.

NOTE: Full semester
FORMA T: Lecture 3 hours, lab 3 hours

VTEC 0114.02: Fundamentals in Veterinary Technology I. This is the first in a stream of courses designed to address discrete topics in veterinary technology. These topics may not warrant full course status; they may require attention at specific times in the syllabus; they may need to be addressed at several levels. Topics in this first fundamentals course are: orientation to the profession and to the program; first aid training; WORMS; workplace safety; and an introduction to zoonotic disease, animal husbandry, cleaning and disinfection, nutrition, animal behavior, records in veterinary medicine, and veterinary medical terminology.

NOTE: Full semester
FORMA T: Lecture 3 hours

VTEC 0115.02: Anatomy–Physiology–Pathophysiology I. This is the first of two courses designed to enable the student to apply the principles of anatomy, physiology, and pathophysiology to animal nursing and medicine. Clinical applications are stressed, and progress through this course is coordinated with other courses in the semester. This course addresses the general topics of cell, tissue, organ, and system plus terms and processes in anatomy, physiology, and disease generally. It then deals with the anatomy, physiology, and typical disease processes in the major body systems. Systems in this course include musculoskeletal, cardiovascular, respiratory, and urinary/excretory.

NOTE: Full semester
FORMA T: Lecture 3 hours, lab 3 hours

VTEC 0121.02: Animal Medicine and Nursing II. This is the second in a stream of medicine and nursing courses designed to enable the student to grasp cognitively the principles and practices of veterinary medical, surgical, and related topics. In conjunction with other courses in the Veterinary Technology Program and the related internship and externships, these courses equip the graduate to perform entry-level clinical tasks in the veterinary practice workplace. Topics included in this course are: anesthesiology, surgical preparation and asepsis, radiography, exposure and positioning, clinical calculations, fluid therapy, blood sampling, common infectious diseases of companion animals, feeding in disease states, and introduction to dental disease and treatment.

NOTE: Winter semester
FORMA T: Lecture 3 hours
PREREQUISITE: VTEC 0111, VTEC 0112

VTEC 0122.02: Clinical Exercises II. This is the second in a stream of clinical exercises courses designed to enable the student to perform medical, surgical, and related clinical skills. In conjunction with other courses in the Veterinary Technology Program and the related internship and externships, these courses equip the graduate to perform entry-level clinical tasks in the veterinary practice workplace. Animal care and maintenance duties are in addition to the scheduled hours in this course. Task areas included in this course are: animal and facilities maintenance, drug administration, general nursing, anesthesiology, surgical preparation, radiography, fluid therapy, sampling for the laboratory, and dental equipment and supplies.

NOTE: Winter semester
FORMA T: Lecture 1 hour, lab 4 hours
PREREQUISITE: VTEC 0111, VTEC 0112

VTEC 0123.02: Veterinary Clinical Pathology II. This is the second in a stream of theory and practical clinical pathology courses designed to enable the student to perform, and cognitively grasp the principles of, essential tasks in the in-house veterinary practice laboratory. In conjunction with other courses in the Clinical Pathology stream and the related internship and externships, these courses equip the graduate to perform entry-level diagnostic tasks in the veterinary practice workplace. Task areas and topics included in this course are all prior topics, plus blood cell development and assessment, total white blood cell counts, the differential count, toxic white cells, CBC, CRP, ESR, eosinophil count, and other inflammatory tests, canine heartworm assays, Mycoplasma hemofelis, and clinical pathology case studies.

NOTE: Winter semester
FORMA T: Lecture 3 hours, lab 3 hours
PREREQUISITE: VTEC 0111, VTEC 0112

VTEC 0124.02: Fundamentals in Veterinary Technology II. This is the second in a stream of courses designed to address discrete topics in veterinary technology that do not warrant full course status so that there is greater attention during the semester to support other courses. Topics included in this course are communications in the veterinary practice, veterinary medical records, endurability and legislation in the veterinary professions, veterinary medical terminology, pharmacology, parasitology, and computer applications in veterinary practice, and the economics of veterinary practice.

NOTE: Winter semester
FORMA T: Lecture 5 hours
PREREQUISITE: VTEC 0114
VTEC 0125.02: Anatomy–Physiology–Pathophysiology II.

This is the second of two courses designed to enable the student to apply the principles of anatomy, physiology, and pathophysiology to animal nursing and medicine. Clinical applications are stressed, and progress through this course is coordinated with other courses in the semester. This course addresses the anatomy, physiology, and typical disease processes in the remainder of the major body systems. Systems and topics in this course include: digestive, respiratory, nervous, and endocrine systems; organs of special sense; and skin. The principles of inheritance and genetics and embryology are dealt with using examples of common congenital diseases.

NOTE: Winter semester

FORMAT: Lecture 3 hours, lab 3 hours.

PREREQUISITE: VTEC 0121

VTEC 0131.02: Internship in Veterinary Technology.

This is a co-operative course. In this course the learning objectives of all courses in the first two semesters are consolidated and re-tested. Students rotate through clinical, laboratory, and off-campus co-operative hospital experiences, with daily classroom sessions for discussion and testing. In its clinical and diagnostic laboratory sessions, students hone skills learned in the first two semesters and acquire some new ones. Completion of this course is a prerequisite for registration in VTEC 0133 and for registration in all second-year courses (Semesters 4 and 5). The approximate division of elements of this course is: Clinical: 64 hours; (2 x 8 hr per week); Clinical Pathology: 36 hours; (3 x 3 hr per week); Co-Operating Hospital: 16 hours; (2 x 8 hr per week); and Cognitive Classroom Sessions: 16 hours (4 x 4 hr per week). Animal care and maintenance duties are in addition to scheduled hours in this course. Task areas included in this course are: animal and facilities maintenance, drug administration, anaesthesiology, surgical preparation and assisting, radiography, clinical calculations, fluid therapy, blood sampling, fasting, and introduction to dental disease and treatment.

NOTE: Spring semester

FORMAT: 8 weeks.

VTEC 0132.02: Externship at the Atlantic Veterinary College.

This course is an off-campus externship delivered by the Atlantic Veterinary College (AVC). During these four weeks students are on duty with technical staff for at least one-half of their time at the Veterinary Teaching Hospital (VTH). Evening and night shifts are a large part of the AVC Externship. Day shifts allow some opportunity for the student to choose specific areas of interest. In addition, there are structured learning exercises. There is a significant livestock and companion-animal component. Students attend this externship in one or more sections. Attendance is required at all scheduled duty shifts and for being on-call, so the prerequisite for registration in VTEC 0133 and for registration in all second-year courses (Semesters 4 and 5).

NOTE: Spring semester

Cost of transportation to AVC and room and board in Charlottetown are the responsibility of the student. Staff of the Veterinary Technology Program will assist the student where possible, but the responsibility for living arrangements is the student’s.

FORMAT: 4 weeks.

VTEC 0133.02: Externship in General Veterinary Practice.

This course is an off-campus learning experience in a general veterinary practice. Students locate their externship practices from a list provided by the VT Program staff, but an unlisted practice contacted by a student may be approved. To be approved, an internship practice must have a significant companion-animal (small-animal) clientele and employ at least one graduate AHVDVE. Students may apply to complete this externship in practices outside of the Atlantic Region. A contract between the student, the practice, and the University must be completed before this externship can begin. Weekly report forms and a final report are completed by practice personnel. Student assignments must be completed before a credit can be awarded for this course.

NOTE: Spring semester

FORMAT: 8 weeks.

PREREQUISITE: VTEC 0131

VTEC 0211.02: Animal Medicine and Nursing III.

This is the third in a stream of medicine and nursing courses designed to enable the student to apply the principles and practices of veterinary medical, surgical, and related topics. In conjunction with other courses in the Veterinary Technology Program and the related internship and externships, these courses equip the graduate to perform entry-level clinical tasks in the veterinary practice workplace. Topics included in this course are: anesthesiology, pain management, surgical preparation and assisting, radiography, clinical calculations, fluid therapy, emergency procedures, blood sampling, non-infectious diseases of companion animals, feeding in disease states, and dental disease and treatment.

NOTE: Full semester

FORMAT: Lecture 8 hours per week.

PREREQUISITE: VTEC 0131, VTEC 0132

VTEC 0212.02: Clinical Experiences III.

This is the third in a stream of theory and practical clinical courses designed to enable the student to perform, and cognitively grasp the principles of, essential tasks in the in-house veterinary practice laboratory. In conjunction with other courses in the clinical pathology stream and the related internship and externships, these courses equip the graduate to perform entry-level diagnostic tasks in the veterinary practice workplace. Topics included in this course are all prior topics, plus theory of blood chemical tests, serum chemistry, large-animal parasites, bacteriology of alternate species, microbiology and antimicrobial susceptibility testing, yeast, and other fungi, advanced parasitology techniques, quality control in the laboratory, submissions to external laboratories, and clinical pathology case studies.

NOTE: Full semester

FORMAT: Lecture 1 hour, lab 4 hours.

PREREQUISITE: VTEC 0131, VTEC 0132

VTEC 0213.02: Veterinary Clinical Pathology III.

This is the third in a stream of courses designed to address discrete topics in veterinary technology that do not warrant full-course status or that require attention during the semester to support other courses. Case reports from externships are delivered and discussed. Topics included in this course are: veterinary medical terminology, pharmacology and dispensing, parasitology, clinical calculations, computer applications in veterinary practice, bookkeeping in the veterinary practice, and presentations to small groups.

NOTE: Full semester

FORMAT: Lecture 3 hours, lab 3 hours.

PREREQUISITE: VTEC 0131, VTEC 0132

VTEC 0214.02: Fundamentals in Veterinary Technology III.

This is the third in a stream of courses designed to address discrete topics in veterinary technology that do not warrant full-course status or that require attention during the semester to support other courses. Case reports from externships are delivered and discussed. Topics included in this course are: veterinary medical terminology, pharmacology and dispensing, parasitology, clinical calculations, computer applications in veterinary practice, bookkeeping in the veterinary practice, and presentations to small groups.

NOTE: Full semester

FORMAT: Lecture 3 hours

PREREQUISITE: VTEC 0131, VTEC 0132

VTEC 0215.02: Livestock and Equine Principles.

Through a mixture of classroom and field-trip exercises, this course enables the Veterinary Technology student to recognize common equine and livestock breeds; describe livestock production cycles and methods, and use appropriate terminology. Common diseases of large animals as they relate to the veterinary technicians are dealt with. Urgent and emergency clinical signs in large-animal practice are stressed. Common clinical procedures in large-animal practice are outlined.

NOTE: Full semester

FORMAT: Lecture 5 hours, lab 2 hours.

PREREQUISITE: VTEC 0131, VTEC 0132

VTEC 0221.02: Animal Medicine and Nursing IV.

This is the last course in a stream of medicine and nursing courses designed to enable the student to apply the principles and practices of veterinary medical, surgical, and related topics. Upon completion of this course and the related course VTEC 0222, the graduate is able to perform entry-level clinical tasks in the veterinary practice workplace. Problem-oriented case studies are used as models. All test areas included in prior Animal Medicine and Nursing courses are re-evaluated comprehensively.

NOTE: Winter semester

FORMAT: Lecture 4 hours per week.

PREREQUISITE: VTEC 0211, VTEC 0212
VTEC 0222.02: Clinical Exercises IV.
This is the last and capstone course in a stream of clinical exercises courses designed to enable the student to perform medical, surgical, and related clinical skills. Upon completion of this course and the related VTEC 0221, the graduate is able to perform entry-level clinical tasks in the veterinary practice workplace. All task areas included in prior Clinical Exercises courses are reviewed, some are elaborated, and students are re-evaluated.
NOTE: Winter semester
FORMAT: Lecture 1 hour, lab 4 hours
PREREQUISITE: VTEC 0211, VTEC 0212

VTEC 0223.02: Veterinary Clinical Pathology IV.
This is the last and capstone course in a stream of theory and practical clinical pathology courses designed to enable the student to perform, and cognitively grasp the principles of, essential tasks in the in-house veterinary practice laboratory. Upon completion of this course the graduate is able to perform entry-level laboratory diagnostic tasks in the veterinary practice workplace. Students are re-evaluated comprehensively. Task areas and topics included in this course are all prior topics; plus cytology of the reproductive tracts, soft tissues, and body fluids; transfusion medicine; bone marrow evaluation; semen evaluation; cerebrospinal fluid; hemodynamics; coagulation factor evaluations; quality control programs; trouble shooting problems in the laboratory; and clinical pathology case studies.
NOTE: Winter semester
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: VTEC 0213

VTEC 0224.02: Fundamentals in Veterinary Technology IV.
This is the last and capstone course in a stream of courses designed to address discrete topics in veterinary technology that do not warrant full-course status or that require attention during the semester to support other courses. All topics included in prior Fundamentals courses are reviewed and some are elaborated, and students are re-evaluated comprehensively in all areas.
NOTE: Winter semester
FORMAT: Lecture 5 hours

VTEC 0225.02: Laboratory Animal and Alternative Pet Medicine.
This course enables the student to apply the principles of clinical nursing to alternate and exotic pets as well as to common laboratory animal species. It also enables the graduate to enter the research facility and, with supplemental training and experience, prepares the graduate for certification with the Canadian Association for Laboratory Animal Sciences. Topics include specialized animal sources, barriers and containment, bio-hazards, special requirements of various species, handling of and common techniques used on alternate and laboratory animal species, and the ethics of animal research and of wild animal species as pets.
NOTE: Winter semester
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: VTEC 0211, VTEC 0212, VTEC 0213, VTEC 0214
Faculty of Architecture and Planning

Address: Faculty of Architecture and Planning
Dalhousie University
5410 Spring Garden Road
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3971
Fax: (902) 423-6672
Email: arch.office@dal.ca
Website: http://archplan.dal.ca

Dean
Macy, C., BA (Arch) (California at Berkeley), MArch (MIT), Reg Arch (WA)
Telephone: (902) 494-3972
Email: christine.macy@dal.ca

Administrative Secretary to the Dean
Burnstead, M., BSc (Dalhousie), BEd (MSVU)
Telephone: (902) 494-3210
Email: martha.burnstead@dal.ca

Director of Career and Community Services
Costello, P., BEDS, BArch (TUNS), MRAIC
Telephone: (902) 494-3971
Email: paula.costello@dal.ca

Administrative Assistant (Finance)
Guile, E., BCom, CHSA (Dalhousie)
Telephone: (902) 494-6230
Email: eric.guile@dal.ca

I. Introduction
The Faculty of Architecture and Planning includes the School of Architecture and the School of Planning. The Faculty’s degree programs are primarily for individuals who intend to become a professional architect or planner. The Faculty also offers several courses that are open to all students in the university, as well as undergraduate and graduate courses that may be taken with permission from the instructor. The professional Architecture program (BEDS/MArch) is described in the Architecture section of this calendar. The Bachelor of Community Design program is described in the Planning section of this calendar. Please see the Graduate Studies calendar for a description of all graduate Architecture and Planning programs.
Facilities

The School is housed in the original home of the Nova Scotia Technical College, built in 1909 and renamed the Ralph M. Mutch Building in 2005. Corresponding to the School’s emphasis on architectural design, one-third of the building is devoted to studio spaces that are open to students 24 hours a day. The building also has several computer labs with a wide array of equipment, a fully-equipped woodworking shop, an experimental construction lab, a digital modeling shop, photographic and GIS facilities, and a large exhibition hall. The University Library’s architecture collection is located nearby, and a student resource centre is housed within the Faculty.

Co-op Work Terms

The School’s professional degree program includes two work terms that provide students with practical experience in building design and responsible professional practice. The School’s Co-op Program has been operating since 1979, and the Faculty of Architecture and Planning’s Co-op Office assists students in finding suitable work-term placements. In recent years, Architecture students have been employed in every province and territory in Canada, and approximately one-third have chosen to work abroad - most recently, in Argentina, Austria, China, Egypt, England, Germany, Iran, Japan, Netherlands, Norway, Singapore, Switzerland, and the United States.

Accreditation

The School’s professional degree program is fully accredited by the Canadian Architectural Certification Board (CACB). The entire six-year program consists of two years of general study and a recognized university. Followed by at least two years of undergraduate study at the School of Architecture (BEDS) and two years of graduate study at the School of Architecture (MArch). In Canada, all provincial-territorial associations recommend that a student have at least one year of full-time, full-year accredited professional education. However, the pre-professional degree is not, by itself, recognition of an accredited degree.

Professional Registration

After receiving the professional degree, a graduate may fulfill additional requirements for professional registration, including a period of post-graduate practical experience and the completion of registration examinations. In Canada, these additional requirements are determined by provincial organizations that are empowered to register individuals for professional practice. An American citizen who graduates from the School’s MArch program is qualified to become an architect in the United States and to complete the examination for professional registration there. Applicants from other countries are advised to contact the national architectural organization about requirements for professional registration.

Admissions

The School of Architecture offers several courses that are open to all students in the university:

• ARCH 2025.03: Design Drawing
• ARCH 2001.03: Visual Thinking B
• ARCH 2000.03: Visual Thinking A
• ARCH 1200X/Y .06: Science of the Built Environment
• ARCH 1000X/Y .06: Introduction to Architecture
• ARCH 1200X/Y.06: Science of the Built Environment
• ARCH 2000.01: Visual Thinking A
• ARCH 2001.01: Visual Thinking B
• ARCH 2025.01: Design Drawing

Please consult the university’s academic timetable for available courses. Individuals who are not currently registered at Dalhousie University should refer to the university’s regulations in this calendar for details on Special Student status.

II. Courses Open to Non-Majors

The School of Architecture offers several courses that are open to all students in the university:

• ARCH 1000X.Y.06: Introduction to Architecture
• ARCH 1100X.Y.06: Science of the Built Environment
• ARCH 2000.01: Visual Thinking A
• ARCH 2001.01: Visual Thinking B
• ARCH 2025.01: Design Drawing

Please consult the university’s academic timetable for available courses. Individuals who are not currently registered at Dalhousie University should refer to the university’s regulations in this calendar for details on Special Student status.

III. Undergraduate Degree Program

Bachelor of Environmental Design Studies

BEDS is a two-year, full-time, pre-professional program for a student who has already completed at least two years of general studies in subjects other than architecture. It consists of four academic terms in residence and a summer work-term. The BEDS program leads to the MArch program, as well as to the Faculty’s other graduate programs in Environmental Design Studies and Planning. A BEDS graduate may also choose to continue into another related field in design, environmental studies, management, etc., at Dalhousie or elsewhere.
IV. Undergraduate Regulations

For academic regulations that apply to undergraduate students in the School of Architecture (including workload, course changes, withdrawal, transfer credits, part-time status, duration of undergraduate studies, minimum degree requirements, assessment, incomplete course work, reassessment of a grade, and academic standing), please refer to the Academic Regulations section in this calendar and the Current Students section of the School of Architecture Website. Please note that some undergraduate regulations differ from their graduate counterparts.

V. Undergraduate Courses Offered

A. Professional Degree Program

The following chart illustrates the duration of terms throughout the four years of the professional degree program in the School of Architecture. Following the two-year general studies prerequisite, the next two years are Bachelor of Environmental Design Studies and the final two years are Master of Architecture.

<table>
<thead>
<tr>
<th>Year 4 - Term B4 (Fall)</th>
<th>Year 3 - Term B3 (Winter)</th>
<th>Year 3 - Term B2 (Summer)</th>
<th>Year 2 - Term B1 (Fall)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 4502.03: Representation</td>
<td>ARCH 3501.03: Representation</td>
<td>ARCH 3002.06: Design</td>
<td>ARCH 3000.03: Design</td>
</tr>
<tr>
<td>ARCH 4304.01: Professional Practice</td>
<td>ARCH 3207.03: Building Technology</td>
<td>ARCH 3104.03: Foundations in Architectural History and Theory</td>
<td>ARCH 2000.03: Design</td>
</tr>
<tr>
<td>ARCH 4111.03: Architectural History and Theory - 19th Century</td>
<td>ARCH 3105.03: Architectural History and Theory - 20th Century</td>
<td>ARCH 3001.06: Design</td>
<td>ARCH 4000.03: Design (Co-op Work Term)</td>
</tr>
<tr>
<td>ARCH 4001.03: Professional Practice</td>
<td>ARCH 4001.03: Professional Practice</td>
<td>ARCH 4001.03: Professional Practice</td>
<td>ARCH 4002.01: Representation</td>
</tr>
<tr>
<td>ARCH 4002.01: Representation</td>
<td>ARCH 4002.01: Representation</td>
<td>ARCH 4002.01: Representation</td>
<td>ARCH 4002.01: Representation</td>
</tr>
</tbody>
</table>

B. Bachelor of Environmental Design Studies

Year 3 - Term B3 (Winter)

- ARCH 3302.01: Free Lab
- ARCH 3402.03: Design
- ARCH 3402.06: Design
- ARCH 3402.09: Free Lab

Year 4 - Term B4 (Fall)

- ARCH 4302.01: Professional Practice (Co-op Work Term)
- ARCH 4302.01: Professional Practice
- ARCH 4302.01: Professional Practice
- ARCH 4302.01: Professional Practice

VI. Undergraduate Course Descriptions

Course Numbers

The first digit of an ARCH course number indicates its level: introductory courses open to all university students (1 and 2); Year 1 - BEDS (3); Year 2 - BEDS (4); or Undergraduate Co-op Work Term (5). The second digit indicates the area of study: Design (0), Humanities (1), Technology (2), Professional Practice (3), or Representation (4). Courses in the BEDS program have various credit-hour extensions (1-0.5) that indicate the approximate course hours each week and the appropriate balance of subjects for professional accreditation. Courses may be interchanged between academic terms, depending on the availability of instructors.

ARCH 1000X/Y.06: Introduction to Architecture.

This course introduces architectural theory and practice through engaging themes in the discipline. It emphasizes design as a method of study, considers the materiality of buildings, and interlaces the built environment as an expression of culture.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture/seminar


This course introduces a broad range of scientific principles that influence the construction and environment of buildings. It studies topics such as mechanics, ecology, light, heat, and sound. The course uses a "common-sense" approach involving graphic images, practical understanding, and problem-solving: a background in science or mathematics is not required.

NOTE: Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.

FORMAT: Lecture

ARCH 2000.03: Visual Thinking A.

Architects, scientists, political activists, manufacturers, and others employ a variety of visual tools to study and engage with the world. Students in this course learn to create maps, simple technical drawings, and other visual devices, and use them to analyze actual situations and to generate and present new ideas. Hands-on work is emphasized, but no prior experience in drawing or design is needed. With its focus on constructing the concrete, outer world, this course is a useful complement to ARCH 2000.03.

FORMAT: Lecture/seminar

PREREQUISITE: Completion of first year university or permission of instructor

ARCH 2001.03: Visual Thinking B.

As the world becomes more visually oriented, a critical appreciation of visual information becomes indispensable. Students use charts, diagrams and other means of externalizing, developing, and sharing ideas. In doing so, they learn to analyze the form of graphic information as well as the content. Hands-on work is emphasized, but no prior experience in drawing or design is needed. This course is a more abstract and reflective complement to ARCH 2000.03.

FORMAT: Lecture/seminar

PREREQUISITE: Completion of ARCH 2000.03 or permission of instructor

ARCH 2025.03: Design Drawing.

This course enables students to enhance their design literacy skills through attention to graphic design, layout, composition, and typography. Students will gain experience in a range of techniques in design drawing and portfolio presentation.

FORMAT: Lecture/lab

PREREQUISITE: ARCH 1000, PLAN 1002 or permission of instructor

ARCH 3001.06: Design.

This course studies basic principles of architecture through studio projects using drawings and models. Students design elementary building forms beginning with the position, on various sites. Working with basic building elements of floor, wall and roof, students consider architectural composition and materials at the three scales of detail, building, and site. The course includes historical design studies to understand how other architects have responded to similar problems.

FORMAT: Lecture/studio

RESTRICTION: Year 3 BEDS students

ARCH 3002.06: Design.

This course studies principles of architecture by focusing on the design of the house. Building on topics from ARCH 3001, it considers issues of composition (structural, volumetric, and spatial), building programs, interior environment, and relations to community context and ecological sustainability. The course includes historical design studies to understand how other architects have responded to these issues.

FORMAT: Lecture/studio

RESTRICTION: Year 3 BEDS students
ARCH 3104.03: Foundations in Architectural History and Theory.
This course introduces basic topics in architecture and interpretive methods in architectural research. It focuses on selected buildings and their roles in the development of architecture in the ancient and modern eras. To develop research skills and architectural awareness, students interpret local buildings through direct experience and study of their background and historical contexts. Taught through lectures and studio work.
FORMAT: Lecture/seminar
RESTRICTION: Year 3 BEDS students
ARCH 3105.03: Architectural History and Theory - 20th Century.
This course is a survey of late modern architecture, focusing on Europe and North America. Buildings and urban projects are situated in their social and political contexts and the theoretical constructs that influenced their development. Students are exposed to external archives and resources to research local modern buildings and their architects.
FORMAT: Lecture/seminar
RESTRICTION: Year 3 BEDS students
ARCH 3207.03: Building Technology.
This course studies principles of architecture through the design of a public building. This course builds on the principles of drawing, modeling, imaging, and architectural representation. Class work involves freehand drawing, orthographic projection, and computational modeling methods. Students complete studio assignments that challenge them to develop a project that uses building technology strategically and engages relevant issues in architectural history and theory. Emphasis is also placed on fluency in architectural representation.
FORMAT: Lecture/seminar
RESTRICTION: Year 3 BEDS students
ARCH 3301.01: Professional Practice.
This course introduces the role and place of the architect in society, with an emphasis on the development of the profession through history. It also studies representation methods employed by architects and their implications for design.
FORMAT: Lecture/seminar
RESTRICTION: Year 3 BEDS students
ARCH 3302.01: Professional Practice.
This course introduces the role and place of the architect in society, with an emphasis on the development of the profession through history. It also studies representation methods employed by architects and their implications for design.
FORMAT: Lecture/seminar
RESTRICTION: Year 3 BEDS students
ARCH 3501.03: Representation.
This course studies fundamental concepts, techniques, and applications of architectural representation. Class work involves freehand drawing, orthographic projection, and computational modeling methods. Students develop studio assignments that challenge them to develop a project that uses building technology strategically and engages relevant issues in architectural history and theory. Emphasis is also placed on fluency in architectural representation.
FORMAT: Lecture/seminar
RESTRICTION: Year 3 BEDS students
ARCH 3502.03: Representation.
This course builds on the principles of drawing, modeling, imaging, and composition studied in ARCH 3501. Topics include axonometrics, perspective, tone, color, and composition.
FORMAT: Lecture/seminar
RESTRICTION: Year 3 BEDS students
ARCH 3503.03: Design.
This course studies principles of architecture through the design of a public building. This course builds on previous courses and includes the organization of a public program and issues of context and interpretation. As an intensive studio it encourages students to focus on design intentions and to develop an awareness of design process.
FORMAT: Lecture/seminar
RESTRICTION: Year 3 BEDS students
ARCH 4004.03: Free Lab.
To complement studio-based learning, this course is an experimental hands-on workshop in design led by an instructor. Investigations of a particular architectural topic may include design-and-build, documentary work, landscape installations, community design projects and interdisciplinary work. Projects may be done locally or involve travel to a distant site.
FORMAT: Lecture/seminar
RESTRICTION: Year 4 BEDS students
ARCH 4005.06: Design.
This course studies advanced principles of architectural design through the design of a medium-sized institutional building. Elaborating on topics from the previous design course, students organize a complex program on an urban site and develop a project that uses building technology strategically and engages relevant issues in architectural history and theory. Emphasis is also placed on fluency in architectural representation.
FORMAT: Lecture/seminar
RESTRICTION: Year 4 BEDS students
ARCH 4110.03: Architectural History and Theory - 14th-15th Century.
This course studies significant buildings and the role of architecture from the Renaissance to the Enlightenment, mainly in Europe. It follows the transition from master builder to architect, and the humanist search for order and its manifestation in built form. Students analyze the design of significant buildings by studying historical documents and making interpretive drawings and models.
FORMAT: Lecture/seminar
RESTRICTION: Year 4 BEDS students
ARCH 4111.03: Architectural History and Theory - 19th Century.
This course studies the integration of building structural and enclosure systems in architectural design. Long span structural systems and lateral forces are examined, including their interaction with the enclosure system. Building enclosure studies include the performance of materials in assemblies, the performance of the building envelope, and the sequence of construction. The integration of structure and enclosure is examined through the construction detail. Students complete case studies and design projects on integrating structure and enclosure in buildings.
FORMAT: Lecture/seminar
RESTRICTION: Year 4 BEDS students
ARCH 4212.03: Building Systems Integration.
This course studies performance standards related to human activities in buildings, and the systems and configurations required to support those activities. Building systems are considered in relation to climate, urban situation, and the natural environment. Principles of systems thinking, as well as the use of physical and computational modeling methods, are applied to the comprehensive design of a building to achieve defined performance standards and to consider issues of sustainability with regard to energy balance, water conservation, and component materials.
FORMAT: Lecture/seminar
RESTRICTION: Year 4 BEDS students
ARCH 4303.01: Professional Practice.
This course introduces contemporary office practices and project delivery including marketing, contracts, project phases and contract administration. The course also introduces issues related to the co-op work term, including job placement and the role of the student in a professional office.
FORMAT: Lecture/seminar
RESTRICTION: Year 4 BEDS students
ARCH 4304.01: Professional Practice.
In this week-long module students learn about the architect in society, professional ethics; models of practice; legal aspects of practice; authorities having jurisdiction over building; finance and costing techniques; and internship. FORMAT: Lecture/sem, FORMA T: Lecture/Studio
ARCH 4501.03: Representation.
This course studies the use of manual and digital media in the expression of architectural intentions and an understanding of historical culture, history, and technology. FORMAT: Lecture/Studio
RESTRICTION: Year 4 BEEDS students
ARCH 4502.03: Representation.
This course studies advanced strategies of representation. It promotes the fluency of manual and digital media in design development, guided by architectural intentions and an understanding of historical culture, history, and technology. FORMAT: Lecture/Studio
RESTRICTION: Year 4 BEEDS students
ARCH 8893.03: Professional Practice (Co-op Work Term).
A student works in some aspect of the profession for a total of 500 hours to be accomplished in no less than 12 weeks, and completes a research report or assignment. Work placements are coordinated by the co-op coordinator for Architecture and must be approved by the School. In exceptional circumstances a student may apply to satisfy up to 500 hours of the time requirement through supervised research related to professional practice. RESTRICTION: Year 4 BEEDS students

VII. Graduate Degree Program
The Master of Architecture program description is included here in the undergraduate calendar to provide an overview of the entire professional degree program, which includes both the BEEDS and MArch degrees.

Master of Architecture
Master of Architecture is a two-year, full-time program consisting of four academic terms in residence and an eight-month work term. It includes required courses that complete the core requirements for the School's professional degree in Architecture and must be approved by the School. In exceptional circumstances a student may apply to satisfy up to 500 hours of the time requirement through supervised research related to professional practice. RESTRICTION: Year 4 BEEDS students

VIII. Graduate Courses Offered

A. Master of Architecture

Year 5 - Terms M1 and M2 (Summer and Fall)
- two core courses in Architecture (ARCH 5xxx.03)
- two core courses in Humanities (ARCH 5xxx.03)
- two core courses in Technology (ARCH 5xxx.03)
- two graduate electives (ARCH 6xxx.03 or ARCH 5xxx.03)

Year 5 - Terms M3 and M4 (Winter and Summer)
- ARCH 5309.03: Professional Practice (Co-op Work Term)
- ARCH 5308.03: Professional Practice (Co-op Work Term)

Year 6 - Term M5 (Fall)
- ARCH 5516.06: Building Systems Integration for Design Thesis
- ARCH 5500.03: Master Thesis Preparation
- one graduate elective (ARCH 6xxx.03 or ARCH 5xxx.03)

Year 6 - Term M6 (Winter)
- ARCH 5511.03: Professional Practice
- ARCH 5506.06: Master Thesis
- one graduate elective (ARCH 6xxx.03 or ARCH 5xxx.03)

B. Graduate Courses

Core Courses - Design
- ARCH 5002.06: Urban Housing Studio
- ARCH 5003.06: Adaptive Reuse Studio
- ARCH 5004.06: Urban Systems Studio
- ARCH 5005.06: Material Detail Studio
- ARCH 5006.06: Light Frame Building Studio
- ARCH 5007.06: Landscape Studio
- ARCH 5009.06: Epiphany Architecture Studio
- ARCH 5011.06: Public Architecture Studio
- ARCH 5012.06: Urban Program Studio

Core Courses - Humanities
- ARCH 5102.03: Housing Theory
- ARCH 5103.03: Residential Real Estate Development
- ARCH 5104.03: Urban Systems
- ARCH 5105.03: History and Theory of Cities
- ARCH 5106.03: International Sustainable Development
- ARCH 5107.03: Theory and the Built Environment
- ARCH 5108.03: Architectural Theory of the Enlightenment
- ARCH 5109.03: Epiphany Architecture
- ARCH 5110.03: Architectural Exhibitions
- ARCH 5112.03: Documentation and Conservation of the Modern Movement in Architecture
- ARCH 5113.03: Technology, Culture and Society
- ARCH 5116.03: Humanities Seminar

Core Courses - Technology
- ARCH 5202.03: From Timber to Lumber
- ARCH 5203.03: From Timber to Lumber
- ARCH 5204.03: Composite Materials
- ARCH 5207.03: Light and Material
- ARCH 5208.03: Acoustics
- ARCH 5209.03: Energy Efficient Design
- ARCH 5210.03: Life Cycle Analysis
- ARCH 5211.03: The Construction Detail
- ARCH 5212.03: From Principle to Detail
- ARCH 5213.03: Facades
- ARCH 5214.03: Façade Architecture
- ARCH 5215.03: Form and Material Processes
- ARCH 5216.03: Technology of Heritage Conservation
- ARCH 5217.03: Technology Seminar

Electives
- ARCH 6001.01: Design Seminar
- ARCH 6002.05: Free Lab
- ARCH 6113.01: Architecture and Archaeoastronomy
- ARCH 6114.03: Humanities Seminar
- ARCH 6190.03: Material Investigation
- ARCH 6210.03: Material Investigation in Wood
- ARCH 6211.03: Technology Seminar
- ARCH 6215.03: Earth Construction
- ARCH 6216.03: Natural Fibers
- ARCH 6304.03: Entrepreneurship
- ARCH 6305.03: Permission to Build
- ARCH 6306.03: Professional Practice Seminar
- ARCH 6401.03: Graphic Design in Architecture
- ARCH 6502.03: Drawing in Architecture
- ARCH 6503.03: Photography in Architecture
- ARCH 6504.03: Montage in Architecture
- ARCH 6505.03: Multimedia in Architecture
- ARCH 6506.03: Spatial Constructions in Digital Video
- ARCH 6507.03: Language as Representation
- ARCH 6508.03: Alternatives in Perspective
- ARCH 6509.03: Digital Form
- ARCH 6510.03: Architectural Documentation and Analysis
- ARCH 6511.03: Documentation of Historic Buildings
- ARCH 6512.03: Developments in Architectural Representation
- ARCH 6513.03: Representation Seminar
IX. Graduate Course Descriptions

ARCH 5002.06: Urban Housing Studio. This studio explores the aesthetic, historic, social-cultural and economic challenges presented by contemporary high-density, mixed-use development. The relationship of architecture to urbanism, and building to city, will be explored through exemplary precedents and the design of housing and its associated commercial, institutional, and recreational components. FORMAT: Studio RESTRICTION: Graduate Students - Architecture

ARCH 5003.06: Adaptive Reuse Studio. This studio studies architectural design through the adaptation of an existing building. It examines tensions between existing built facts (structure, enclosures, and circulation) and new ambitions (habitation, construction, and cultural representation). It also considers historical and urban contexts and the heritage value of existing buildings. FORMAT: Studio RESTRICTION: Graduate students - Architecture

ARCH 5004.06: Urban Systems Studio. This studio examines the infrastructure of the metropolis and its influence on urban form and development. Topics may include systems for transportation, energy use, water distribution, civic institutions, spaces of social exchange, and ecology. Students develop urban infrastructure propositions with reference to innovative urban projects worldwide. FORMAT: Studio RESTRICTION: Graduate students - Architecture

ARCH 5005.06: Material Detail Studio. This studio uses bricolage as a method to represent architectural ideas, observations, and intentions in a built artifact. Students interpret, modify, and project material details in architecture. The conceptual development of the work informs strategies for the development of architectural design. FORMAT: Studio RESTRICTION: Graduate students - Architecture

ARCH 5006.06: Light Frame Building Studio. This studio studies the material and constructional orders of light-weight framing building types through drawing, model, and full-scale construction, case studies of buildings by modern and contemporary designers whom design projects for a multiple residential or small institutional building. FORMAT: Studio RESTRICTION: Graduate students - Architecture

ARCH 5007.06: Landscape Studio. This studio investigates architectural responses to landscapes. It regards the land as a physical and cultural context requiring appropriate methods of visualization and representation. Referring to recent projects in land art, it considers how to engage local materials and interests while promoting the sustainable occupation of a particular site. FORMAT: Studio RESTRICTION: Graduate students - Architecture

ARCH 5009.06: Ephemeral Architecture Studio. This studio examines temporal, fleeting and ephemeral architecture, in contrast to the permanent, monumental, and timeless architecture that has been stressed through exemplary precedents. Students address concepts of alterity, the carnivalesque, the permanent, monumental, and timeless architecture that has been stressed throughout history. Students address concepts of alterity, the carnivalesque, the physical and cultural representation. It also considers historical and urban contexts and the heritage value of existing buildings. FORMAT: Studio RESTRICTION: Graduate students - Architecture

ARCH 5010.06: Public Architecture Studio. This studio explores the role of public architecture in manifesting cultural values through exemplary precedents and the design of public buildings and their associated commercial, institutional, and recreational components. FORMAT: Studio RESTRICTION: Graduate students - Architecture

ARCH 5011.06: Coastal Studio. This studio investigates building on the coast. It explores conjunctures of ecology, culture, and traditional technical knowledge. Through participatory design, students work with a coastal community to develop innovative responses to situations with sensitive ecologies, extreme climate, and local cultural traditions. FORMAT: Studio RESTRICTION: Graduate students - Architecture

ARCH 5012.06: Urban Program Studio. This studio focuses on a basic human need (eating, sleeping, etc.) and investigates the customs and institutions we have developed around it. Questioning local practices and considering distinct reference, such student formulates a program, defines a site in the city of Halifax, and designs a building with a critical and/or innovative intent. FORMAT: Studio RESTRICTION: Graduate students - Architecture

ARCH 5013.06: Design-Build Studio. This field-based studio develops architectural abilities in the realization of building innovation. It emphasizes tools and processes that professionals need for detailed design development. It focuses on building prototypes of innovative structures such as wood lamella vaults, brick timber vaults, grid shells, and cable nets. FORMAT: Studio RESTRICTION: Architecture and Planning or permission of instructor

ARCH 5102.03: Housing Theory. This course introduces the history and theory of contemporary practice in housing design and production. The focus is on the quality of housing and the residential environment. A comparative analysis of significant past and current examples is used to provide insight into the way houses and neighborhoods are designed. This understanding is placed in the context of differing economic, political and housing market situations. FORMAT: Lecture/seminar RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 5103.03: Residential Real Estate Development. This course introduces the basic issues, vocabulary, and conceptual approaches of residential real estate development. It also engages the range of design, development, financing, approval, and construction processes that are involved in the production of housing. FORMAT: Seminar RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 5104.03: Urban Systems. This course examines the infrastructure of the metropolis and its influence on urban form and development. It considers transportation, energy use, water distribution, civic institutions, spaces of social exchange, and ecological systems. It emphasizes new concepts of what is “urban” and what is “natural,” referring to innovative urban designs worldwide. FORMAT: Lecture/seminar RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 5105.03: History and Theory of Cities. This course examines selected major cities, their originating form, important buildings, and building types in their history. The primary aim is to explore the relationship between architecture and urbanism and the relationship between individual buildings and the city. FORMAT: Lecture/seminar RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 5106.03: International Sustainable Development. This course examines sustainable development in developed and developing countries. Local building practices and cultural appropriateness are studied through case studies. It considers how architects have handled materials and technology in innovative patterns of living in a reflexive and synthetic manner. FORMAT: Seminar RESTRICTION: Graduate students - Architecture

ARCH 5107.03: Theory and the Built Environment. This course is an overview of contemporary architectural theory, structured into three themes: architecture as a poetic act, moral act, and meaningful act. These
ARCH 5100.03: Architectural Theory of the Enlightenment.
This course focuses on the evolution of the Enlightenment and the search for origins. The terms “Classic” and “Romantic” are examined in depth, as are architecture, the culture of style, historiography, association theory, and the picturesque. Architectural theories are compared with selected works of architecture and architectural representation.

ARCH 5100.03: Ephemerical Architecture.
This course explores ideas of “ephemera” in the city, manifested as ephemeral or temporary constructions, and historical responses to established norms. Theories of utopia, the carnivalesque, the ephemeral and temporary are used to interpret spaces and activities in the city that are marginal, liminal, repressed, neglected, or abandoned.

ARCH 5100.03: Architectural Exhibitions.
This course introduces students to contemporary discussions in the field of exhibit design for architecture, including the role of the viewer, the use of display techniques to frame objects, and the curatorial voice. Groups of students develop an exhibition on a subject of their choice.

ARCH 5110.03: Architectural Exhibitions.
This course introduces students to contemporary discussions in the field of exhibit design for architecture, including the role of the viewer, the use of display techniques to frame objects, and the curatorial voice. Groups of students develop an exhibition on a subject of their choice.

ARCH 5112.03: Documentation and Conservation of the Modern Movement.
This course studies the documentation and conservation of buildings, sites and neighbourhoods of the Modern Movement. It examines international charters, protocols, and issues of identifications, evaluation and public awareness. Students undertake fieldwork and research on specific projects and contribute to a general register of modern works.

ARCH 5112.03: Documentation and Conservation of the Modern Movement.
This course studies the documentation and conservation of buildings, sites and neighbourhoods of the Modern Movement. It examines international charters, protocols, and issues of identifications, evaluation and public awareness. Students undertake fieldwork and research on specific projects and contribute to a general register of modern works.

ARCH 5113.03: Technology, Culture, and Society.
This course studies the technology of architecture in its broad cultural and social context. It explores the issue of technology in history, philosophy, sociology, and material culture, using contemporary and historical buildings as an example.

ARCH 5198.03/5199.03: Humanities Seminar.
This course focuses on an advanced topic in architectural humanities. The topic changes from year to year. It may emphasize history, theory, criticism, urban studies, or architecture in development.

ARCH 5200.03: From Timber to Lumber.
This course examines principles of forestry and ecology pertaining to woodland management. It considers forest ecology, wood production, and the conversion of trees into building products such as dimensional lumber and engineered wood products.

ARCH 5203.03: From Lumber to Structure.
This course focuses on the structural analysis of wood framed buildings and structures. Structural principles in simple beam theory, column design, and lateral load design are studied in traditional and contemporary wood framed buildings.

ARCH 5204.03: Composite Materials.
This course surveys the history of materials, focusing on natural and synthetic polymers, resins, and composite material systems. It studies their origins, chemical content, and manufacturing processes. These materials and their related processes are used to fabricate functional objects, with attention to structure, assembly, and environmental impact.

ARCH 5207.03: Light and Material.
This course examines the characteristics of daylight and artificial light. It analyzes experiments with how light is produced, transmitted, and interacts with various materials. By considering lighting options for a particular use, it regards light as an integral element in the design of interior and/or exterior space.

ARCH 5208.03: Acoustics.
This course studies the principles of indoor room acoustics and audio-visual design. To address acoustical requirements in various types of spaces, it considers sound projection and isolation, and the control of mechanical and environmental noise through building design and acoustical materials.

ARCH 5209.03: Energy Efficient Design.
This course focuses on sustainable building services. It studies building energy codes and rating systems—specifically LEED—in the Atlantic region. It also examines international strategies for low-energy building, passive systems in ventilation, heating, and cooling, renewable energy systems, and the integration of engineering systems into architectural design.

ARCH 5210.03: Life Cycle Analysis.
This course studies the range of environmental impacts associated with building materials and assemblies, from their raw state to the end of their useful life. It considers operating energy, embodied energy, and carbon sequestration, with particular attention to the structure and building envelope of wood framed heritage buildings.

ARCH 5211.03: The Construction Detail.
This course examines the construction detail and its relationship to the architectural whole. Case studies of details in major twentieth century buildings inform detail practice, in which students investigate material options and construction details for a project of their own design.

ARCH 5212.03: From Principle to Detail.
This course focuses on sustainable building technologies. It studies the integration of building systems (e.g., structure, construction, environmental technology). It begins with an overview of principles, followed by a self-directed material exploration, culminating in the production of a relevant building detail.

ARCH 5213.03: Facades.
This course examines the various functions of a building facade: protection from weather, interior comfort, urban sign, and potential energy producer. It considers how a facade designed for a particular program can achieve high performance through attention to detail: building materials, manufacturing processes, and construction techniques.
ARCH 5214.03: Tensile Architecture.
This course explores the design and construction of tensile structures by building and testing models and mock-ups. It also explores the theoretical potential of tensile structures by integrating technologies such as video, sound, light, sensors, and smart fabric.

FORMAT: Lecture/seminar
RESTRICTION: Graduate students - Architecture

ARCH 5215.03: Fabrication.
This course studies the sequence of trades involved in building construction. It examines the material processes of various construction industries and considers their implications for design, with an emphasis on relations between convention and innovation.

FORMAT: Seminar
RESTRICTION: Graduate students - Architecture

ARCH 5216.06: Building Systems Integration for Design Thesis.
This course parallels the MArch Thesis Preparation (ARCH 9607). Each student undertakes a technological study of his/her architectural design thesis through an ecological analysis of the site; a definition of performance criteria; an investigation of relevant building systems; and the design, construction, and testing of a significant material detail.

FORMAT: Lecture/seminar
PREREQUISITE: Completion of Year 5 MArch
RESTRICTION: MArch students

ARCH 5217.03: Innovation in Computers and Building.
This course surveys and undertakes research in computer-based architectural models and computer-assisted manufacture, logistics, and construction. After an initial survey of the state of the art, students work on a focused design or problem-solving exercise. Where possible, work will contribute to actual building projects, research competitions, and/or publication.

FORMAT: Seminar/studio

ARCH 5218.03: Site and Material Processes.
This course includes extensive field studies in Nova Scotia and the southeast United States. It introduces principles and practices of site dynamics such as ecology, and extends student understanding of building materials, manufacture, and innovative construction processes.

FORMAT: Seminar/studio
RESTRICTION: Graduate students - Architecture

ARCH 5219.03: Technology of Heritage Conservation.
This course studies issues of building technology in heritage conservation. Based on the Standards and Guidelines for the Heritage Conservation of Historic Places in Canada (2010), it considers building technology issues germane to different conservation interventions (preservation, restoration, and rehabilitation), the appropriate use of materials and details, and the integration of building systems technology.

FORMAT: Seminar
RESTRICTION: Graduate students - Architecture

ARCH 5298.03/5299.03: Technology Seminar.
This course focuses on an advanced topic in architectural technology. The topic changes from year to year. It may emphasize materials, environmental strategies, or building details.

FORMAT: Seminar
RESTRICTION: Graduate students - Architecture

ARCH 5308.03/5309.03: Professional Practice (Co-op Work-Term).
A student works in the architectural profession for 1000 hours in no less than 24 weeks and completes a research report or assignment. Work placements must be approved by the School of Architecture. A student may apply to satisfy up to 100 hours through supervised research related to Professional Practice.

FORMAT: Work term
RESTRICTION: MArch students

ARCH 5310.00: Co-op Work Term Continuation.
A student who has already registered for ARCH 5308 and ARCH 5309 may continue the co-op work term for up to three additional terms. While registered in ARCH 5310, a student's university status changes to part-time.

FORMAT: Work term
PREREQUISITE: ARCH 5308.00, ARCH 5309.00
RESTRICTION: MArch students

ARCH 5311.03: Professional Practice.
This course studies principles of professional ethics, partnerships, corporate practices, professional responsibility, and legal aspects of architectural practice. It also considers issues in practice management (contracts, reference documents, finance, costing techniques, and contract administration) with an emphasis on codes.

FORMAT: Lecture/seminar
RESTRICTION: Graduate students - Architecture

ARCH 6001.03: Design Seminar.
This seminar focuses on an advanced topic in architectural design. The topic changes from year to year. It may emphasize urbanism, landscape, building, process, program, or habitation.

FORMAT: Seminar/studio
RESTRICTION: Graduate students - Architecture

ARCH 6002.03: Free Lab.
This course complements normal studio-based learning. It pursues an architectural topic through experimental hands-on work in a group format. Topics change from year to year and may include design-build work, documentaries, landscape installations, community design projects, and interdisciplinary work. Projects may be local or involve travel to a distant site.

FORMAT: Workshop/lab
RESTRICTION: Graduate students - Architecture

ARCH 6121.03: Architecture and Archaeoastronomy.
This course studies the significance of the night sky to various ancient and non-Western cultures, including the Egyptian, Celtic, Mesoamerican, Anasazi, and First Nations. It examines how celestial features and motions guided the design of buildings and influenced cultural practices, including the measurement of time.

FORMAT: Lecture/seminar
RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 6122.03/6123.03/6124.03/6125.03: Humanities Seminar.
This course focuses on an advanced topic in architectural humanities. The topic changes from year to year. It may emphasize history, theory, criticism, urban studies, or architecture in development.

FORMAT: Seminar
PREREQUISITE: Graduate students - Architecture and Planning or permission of instructor

ARCH 6209.03: Material Investigation.
This course uses a controlled workshop environment to examine characteristics of a material (e.g., wood, ceramic, glass) and methods for forming and finishing. Using principles of material science, it considers the harvesting or processing of raw material, the testing of structural capacity and environmental behaviour, and applications in design.

FORMAT: Workshop/seminar
RESTRICTION: Graduate students - Architecture

ARCH 6210.03: Material Investigation in Wood.
This course uses a controlled workshop environment to examine characteristics of wood and methods for forming and finishing. Using principles of material science, it considers the harvesting or processing of raw material, the testing of structural capacity and environmental behaviour, and applications in design.

FORMAT: Workshop/seminar
RESTRICTION: Graduate students - Architecture

ARCH 6211.03/6212.03/6213.03/6214.03: Technology Seminar.
This course focuses on an advanced topic in architectural technology. The topic changes from year to year. It may emphasize materials, environmental strategies, or building details.

FORMAT: Seminar
RESTRICTION: Graduate students - Architecture

114 School of Architecture
ARCH 6215.03: Earth Construction.
This course studies traditional and contemporary methods of earth construction (soil, rammed earth, wattle and daub, earth bag, and adobe) as sustainable, low-impact building systems. Based on the science of soils, it considers appropriate uses of earth technology in the construction of houses.

FORMAT: Lecture/seminar
RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 6216.03: Natural Finishes.
This course examines the use of natural finishes (earth and lime plasters, paint, stone, and wood) for walls, floors, and ceilings in contemporary buildings. Natural, local, and reused materials are assessed in terms of installation cost, durability, aesthetic characteristics, and environmental impact in comparison with industrialized products.

FORMAT: Lecture/seminar
RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 6217.03: Product Development in Architecture.
This course explores the design of manufactured building components. Through field trips, factual study, and hands-on lab, students learn the essentials of conventional and emerging production processes. They apply this knowledge to designing and prototyping a component, typically selected in support of an outside research project or a thesis.

FORMAT: Seminar
RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 6304.03: Entrepreneurship.
Successful entrepreneurship requires an ability to identify opportunities, skill to calculate risks, and the knowledge and determination to promote, develop, and implement a project. This course uses a case study approach to examine entrepreneurship in the public, private, and non-profit sectors and to assess potential applications to architectural practice.

FORMAT: Seminar
RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 6305.03: Permission to Build.
Obtaining a building permit is only the last hurdle to clear before a potential architectural project can be realized. This course examines the entire process, including the various authorities, agencies, and groups that are involved, along with municipal planning regulations, building codes, material specifications, and public presentations.

FORMAT: Lecture/seminar
RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 6306.03: Professional Practice Seminar.
This course focuses on an advanced topic in architectural professional practice. The topic changes from year to year.

FORMAT: Seminar
RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 6501.03: Graphic Design in Architecture.
This course applies principles of information design and typography to architectural presentation. Using digital media, it experiments with various graphic design methods to organize text, images, and graphics in a clear, consistent way for particular presentation purposes.

FORMAT: Lecture/seminar
RESTRICTION: Graduate students - Architecture

ARCH 6502.03: Painting in Architecture.
This course examines how some architects have used painting in design development. Through studio work, students also consider how certain modes of painting may be integral into the design process for their concurrent architectural studio project. Previous experience in any paint medium (e.g., watercolor, gouache, acrylic, oil) is required.

FORMAT: Lecture/seminar
RESTRICTION: Graduate students - Architecture

ARCH 6503.03: Photography in Architecture.
This course examines the role of photography in architectural representation. It also considers how digital photography and computer technology can generate various forms of montage for analyzing and developing architectural designs.

FORMAT: Seminar/studio
RESTRICTION: Graduate students - Architecture

ARCH 6504.03: Montage in Architecture.
This course examines the history, concepts, and uses of montage in architectural representation. It also examines other digital and analog presentations of architecture that may include text, graphics, photographs, sound, voice, animation, and/or video. It also considers how architectural designs can be developed using multimedia. These topics may apply to projects in urban planning.

FORMAT: Seminar
RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 6505.03: Multimedia in Architecture.
This course examines the use of various technologies to visualize, develop, and display multimedia presentations of architecture that may include text, graphics, photographs, sound, voice, animation, and/or video. It also considers how architectural designs can be developed using multimedia. These topics may apply to projects in urban planning.

FORMAT: Seminar
RESTRICTION: Graduate students - Architecture

ARCH 6506.03: Spatial Constructions in Digital Video.
This course examines how digital audio and video can represent physical and spatial qualities of existing architectural, urban, or rural conditions. It emphasizes the use of the video camera and digital software for recording, imaging, and editing.

FORMAT: Seminar
RESTRICTION: Graduate students - Architecture and Planning or permission of instructor

ARCH 6507.03: Language as Representation.
This course examines the role of language and visual perception in architecture. It considers architectural description and criticism according to linguistic or structural models such as the theory of language games, classical rhetoric, or religious mythology.

FORMAT: Lecture
RESTRICTION: Graduate students - Architecture

ARCH 6508.03: Alternatives to Perspective.
This course examines the limitations of linear perspective as a definitive method for representing objects and spaces. It analyzes Renaissance premises of perspective and considers alternative systems that might be applied in contemporary architectural representation.

FORMAT: Seminar
RESTRICTION: Graduate students - Architecture

ARCH 6509.03: Digital Form.
This course examines the influence of emerging representational technologies on the making of architectural form. By analyzing how the design process is affected by working only in a digital environment, students learn about the limitations and possibilities of digital form.

FORMAT: Lecture/studio
PREREQUISITE: ARCH 6501.03
RESTRICTION: Graduate students - Architecture

ARCH 6510.03: Architectural Documentation and Analysis.
This course investigates techniques for documenting and analyzing existing architectural or urban conditions. Various modes of representation (drawing, model, video, and photography) are used to interpret the complex experience of physical form.

FORMAT: Lecture/seminar
RESTRICTION: Graduate students - Architecture
ARCH 6512.03: Developments in Architectural Representation.
This course studies historical developments in the graphic language of architecture and its various modes of representation. By examining works by selected architects, students consider relationships between what is drawn and what is built.

FORMAT: Lecture/studio
RESTRICTION: Graduate students - Architecture

ARCH 6513.03: Representation Seminar.
This course focuses on an advanced topic in architectural representation. The topic changes from year to year. It may emphasize medium, relation to design, or history and theory.

FORMAT: Seminar/studio
RESTRICTION: Graduate students - Architecture
RESTRICTION: MEDS students.

ARCH 9007.06: MArch Thesis Preparation.
Within a seminar group, each student formulates a thesis question and explores it through design, analytical, and interpretive studies. The student is expected to develop and demonstrate expertise in the subject area. ARCH 9007 and ARCH 9008 must be completed in consecutive terms.

FORMAT: Seminar/studio
PREREQUISITE: Completion of Year 5 MArch
RESTRICTION: MArch students

ARCH 9008.06: MArch Thesis.
Each student proposes, develops, and completes an architectural design project that investigates the thesis question. The thesis concludes with a graphic/model presentation, an oral examination, and a formal thesis document that is submitted to the university. The entire thesis requires a minimum of two consecutive terms of residence.

FORMAT: Studio
PREREQUISITE: ARCH 9007
RESTRICTION: MArch students

ARCH 9009.00: MArch Thesis Continuation.
This continuation of ARCH 9008: MArch Thesis is for students who have not completed the thesis in the minimum two terms. The maximum duration of a thesis is five terms (including ARCH 9007).

FORMAT: Studio
PREREQUISITE: ARCH 9008
RESTRICTION: MArch students

School of Planning

Community Design

Location: 5410 Spring Garden Road
PO Box 15000
Halifax, NS B3H 4R2

Telephone: (902) 494-3260
Fax: (902) 423-6672

Professors
Grant, J., BA (UWO), MA (McMaster), MA, PhD (Waterloo), FCIP, LPP
Palermo, F., BArch (Toronto), MArch (Harvard), MArchED (Harvard), FCIP, LPP, FRAIC

Associate Professors
Manuel, P., BA (Carleton), MSc (McGill), PhD (Dalhousie), MCIP, LPP

Assistant Professor
Hübner, M. A., BURP, MURP (Bangladesh), MASc, PhD (Toronto)

Adjunct Faculty
Alam, M. (Uppsala), BSc (Swedish University of Agricultural Sciences)
Budy, P., BArch (Dundee), MArch (TUN)
Epstein, H., BA (Carleton), LLB (Dalhousie)
Ruppin, A., BSc (Toronto), MSc (Dalhousie)
Whitcomb, C., BArch (Dalhousie), MA (Waterloo)

Cross-Appointed Faculty
Beatty, K., Resource and Environmental Studies
Beaulé, J., Major appointment as Map and Geospatial Information Librarian, Killam Library
Rainham, D., Environmental Science
Wealthy, T., Environmental Programs

I. Community Design

Community design studies the design, patterns, processes, and issues in human and natural communities. It explores the world as a system of interconnected and embedded communities linked by cultural and natural processes. Courses examine interventions by which people can work towards creating and maintaining healthy and sustainable communities.

The study of community design at Dalhousie is distinguished by:

• an emphasis on design. The School recognizes the importance of visual and spatial information and analysis, and introduces design as a method of learning, analyzing, and addressing problems. Design is comprehensive, integrative, context-sensitive, and synthetic.

• a focus on reasoned, creative, and practical outcomes. Courses will attract students eager to make changes in the world they inhabit. They will develop the knowledge and skills to allow them to analyze community issues, and to propose and implement appropriate courses of action to achieve desired outcomes.

The School of Planning offers undergraduate education in community design. Various programs are possible: the Bachelor of Community Design (BCD) is a three year program, a Double Major in Community Design and Sustainability is a four year program. Students with high academic standing may apply for the Bachelor of Community Design (Honours) program, with a Major in either Environmental Planning or Urban Design Studies (four year program). The BCD Honours program is a first professional degree recognized by the Canadian Institute of Planners. Students
considering the BCD Honours program (either Environmental Planning or Urban Design Studies Major) have the option of doing a Minor in Environmental Studies, a Minor in Geography or a Double Major with Sustainability.

The Bachelor of Community Design is a three-year general program for students interested in understanding how communities work and the principles that planners and other design professionals use in creating communities. Students with a strong commitment to sustainability may take the four-year Double Major in Community Design and Sustainability. Students who meet the requirements for admission to the Honours program take specialized fourth-year courses in either Environmental Planning or Urban Design Studies.

Students wishing to enter the program must have completed grade 12 with a 70% or greater average in five grade 12 subjects including English, Math, and one Science (Biology or Geology are recommended). Grade 12 Geography is recommended, and a background in art or design is an asset. Students who have successfully completed a full year of university or college-level studies may apply to transfer to the Bachelor of Community Design and may be considered for advanced standing. (Those admitted to transfer students should consult the Undergraduate Coordinator in Planning for advice on course selection.)

All students admitted to the BCD must meet the Dalhousie requirement for a full course or equivalent in courses with a significant writing requirement, usually completed in the first year of university study. Students must complete at least a full course or equivalent in a science subject, and a full course or equivalent in an arts, humanistic, or social sciences subject to graduate.

Students must complete at least 42 credit hours (seven full course equivalents) at the 2000 level or higher for the three year (90 credit hour) degree, or at least 72 credit hours (12 full course equivalents) at the 2000 level or above for a four year degree (120 credit hours).

**Bachelor of Community Design (three year program)**

The Bachelor of Community Design normally takes three years of full time study. It includes 15 full course equivalents, or 90 credit hours of course work. Core required courses for the program include PLAN 1001.03, 1002.03, 2001.03, 2002.03, 2003.03, 2006.03, 3001.03, 3002.03, 3003.03, 3006.03, 3025.03. In year one students take PLAN 1001.03, PLAN 1002.03, and GEOG/ERTH 1030.03. They also select either ARCH 1000.06 or ENVS 1000.06 or SUST 1001.06 (although they may take two). Students must complete six credit hours of an approved English writing requirement course (see below), six credit hours of science courses and six credit hours of courses from the humanities or social science disciplines.

Students will select six credit hours in one subject from the following courses approved by the Bachelor Community Design English writing requirement. Other writing requirement courses may be considered by the School of Planning on an individual basis:

- CLAS 1010X.Y6, CLAS 1030X/Y6, ENGL 1000X/Y6, ENGL 1101.03, ENGL 1020.03, ENGL 1040.03, ENGL 1100.03, ENGL 2100.03, ENGL 2110.03, HIST 1000.08, HIST 1400.03, HIST 1401.03, HIST 1402.03, HIST 1403.03, JOUR 1000X/Y6, POLI 1000X/Y6, PHIL 1010X/Y6, SOIA 1000.06, SUST 1000.06, THIA 1000X/Y6, TIDEA 1300X/Y6.

Program requirements are as follows:

**Year 1**

- PLAN 1001.03: Introduction to Community Design
- PLAN 1002.03: Introduction to Community Design 2
- GEOG/ERTH 1030.03: Physical Geography
- Select from among: ARCH 1000.06 or ENVS 1000.06 or SUST 1001.06
- Plus 2.5 more full courses (15 credit hours), normally including the six credit hours English writing requirement

The School of Planning recommends that students also consider taking at least one of ETHS 1000.03 or 2000.03, or GEOG 1030.03 in their first year.

**Year 2**

- PLAN 2001.03: Landscape Analysis
- PLAN 2002.03: Community Design Methods
- PLAN 2003.03: Community Design Content
- PLAN 2006.03: Space, Place and GIS
- Select one course (three credit hours) from among: core electives list (see below)
- Plus 15 more credit hours - electives of student’s choice

**Year 3**

- PLAN 3001.03: Landscape Ecology
- PLAN 3002.03: Reading the City
- PLAN 3005.03: Cities and the Environment in History
- PLAN 3006.03: Reading the Landscape
- PLAN 3025.03: Representation in Design
- Select three credit hours from among: core electives list
- Plus 15 more credit hours - electives of student’s choice

**Bachelor of Community Design, Double Major in Community Design and Sustainability (four year program)**

For complete details about the College of Sustainability see page 44. The Double Major in Community Design and Sustainability normally requires four years of full time study (120 credit hours). It includes 20 full course equivalents, or 120 credit hours of course work. Core courses required for the Community Design portion of the program include PLAN 1001.03, 1002.03, 2001.03, 2002.03, 2003.03, 2006.03, 3001.03, 3002.03, 3003.03, 3006.03, 3025.03, and GEOG 1030.03. Students also select 15 credit hours from the BCD core electives list.

Core courses required for the Sustainability portion of the program include SUST 1000.06, 1001.06, 2000.06, 2001.06, 3000.03, 3002.03, 3003.03, 4000.06. Students NOT enrolling in the BCD Honours program must also complete SUST 2002.03, SUST 4000.06 and one full credit (six credit hours) from the list of ESS electives.

Program requirements are as follows:

**Year 1**

- PLAN 1001.03: Introduction to Community Design 1
- PLAN 1002.03: Introduction to Community Design 2
- ERTH/GEOG 1030.03: Physical Geography
- SUST 1000.06: Introduction to Environment, Sustainability and Society 1
- PLAN 1006.03: Introduction to Environment, Sustainability and Society 2
- Plus 1.5 credits or nine credit hours of electives

**Year 2**

- PLAN 2001.03: Landscape Analysis
- PLAN 2002.03: Community Design Methods
- PLAN 2005.03: Community Design Content
- PLAN 2006.03: Space, Place and GIS
- SUST 2006.06: Humanity in the Natural World: An Introduction to Problem-based Learning
- SUST 2001.06: Environment, Sustainability and Governance: A Global Perspective
- Plus six credit hours of electives

**Year 3**

- PLAN 3001.03: Landscape Ecology
- PLAN 3002.03: Reading the City
- PLAN 3005.03: Cities and the Environment in History
- PLAN 3006.03: Reading the Landscape
- PLAN 3025.03: Representation in Design
- SUST 3002.03: Global Approaches to Environmental Decision Making
- SUST 3502.03: The Campus as a Living Laboratory
- Select three credit hours from among: BCD core elective list
- Plus six more credit hours - electives of student’s choice or if Honours, from list of approved ESS electives

**Year 4**

- SUST 4000.06: Environment, Sustainability and Society: Capstone (not Honours)
- SUST 3002.03: Environment and Sustainability Internship (not Honours)
- Select six credit hours from BCD core electives list (above the 2000 level)
- Plus 15 credit hours (2.5 credits) in electives of student’s choice
Bachelor of Community Design (Honours) (four year program)

The Bachelor of Community Design (Honours) normally takes four years of full-time study. Students complete the requirements for the general community design program and then complete a fourth year of specialized study. The program requires 20 full course equivalents, or 120 credit hours of course work.

The Honours programs provide opportunities for students who do well in their studies to deepen their understanding through additional course work, an internship work placement, and community-based research projects. Students participate in community design studios where learning involves working on community-centred projects. Thus, students gain practical experience to bring to bear on their academic studies. The BCD Honours is a first professional degree in planning recognized by the Canadian Institute of Planners.

Eligible students need to meet the following conditions:

- They completed the BCD not more than 10 years prior to application for study to complete the requirements for the Honours degree.
- They completed the three-year BCD with a cumulative GPA of 3.0 or greater and a calculated GPA of 3.0 or higher for mandatory Community Design courses and core electives.

Requirements for Graduation with Honours

- Students who complete the three-year BCD and graduated with the Honours degree require the following:
  - 3.0 or higher cumulative GPA, and
  - 3.0 or higher GPA calculated for mandatory planning and core elective courses completed at the time of application to the Honours program. (Where students have completed more than nine credit hours of core electives, the highest grades for the nine credit hours will be used in the calculation).

Once in the Honours program, students must maintain both a cumulative GPA of 3.0 or higher and a GPA of 3.0 or higher for mandatory Planning courses and core electives. If a student fails below either of these minimum standards, the student cannot continue in the Honours program. A student may apply for re-entry to the Honours program once the minimum standard is restored.

Students have a choice of major within the Honours program. During the Honours year, students require 30 credit hours, as follows:

Year 4 of Honours Major in Urban Design and Planning

- PLAN 4050.03: Thesis Proposal
- PLAN 4100.03: Community Design Internship
- PLAN 4500.06: Thesis Project
- six credit hours from core electives list B (Urban Design Studies) or list C (electives for either major) at 2000 level or above

Year 4 of Honours Major in Environmental Planning

- PLAN 4000.06: Environmental Planning Studies
- PLAN 4050.03: Thesis Proposal
- PLAN 3903.03: Application of Planning Law
- PLAN 4000.06: Thesis Project
- six credit hours from core electives list A (Environmental Planning) and six credit hours from core electives list A or list C (electives for either major) at 2000 level or above

Requirements for Graduation with Honours

In order to graduate with the Honours Major distinction in the BCD the student will have completed the course requirements identified above and will have a cumulative GPA of 3.0 or higher and a calculated GPA of 3.0 or higher for required Community Design courses and core electives.

BCD Honours Conversion

Students who complete the three-year BCD program and graduated with the degree may apply to convert their degree to Honours with an additional year of study to complete the requirements for the Honours degree.

Eligible students need to meet the following conditions:

- They completed the three-year BCD with a cumulative GPA of 3.0 or greater and a calculated GPA of 3.0 or higher for mandatory Community Design courses and core electives;
- They completed the BCD not more than 10 years prior to application for Honours Conversion.

Requirements for graduation

The Honours Conversion program normally involves one year of full-time study while the student completes the requirements for the Honours Major. Thirty (30) credit hours of required courses must be completed. Students must maintain a cumulative average of not less than 3.0 and a GPA of not less than 3.0 calculated for mandatory Community Design courses and core electives in the Honours program.

Conversion Year requirements for the Honours Major in Environmental Planning

- PLAN 4001.06: Environmental planning studio
- PLAN 4101.03: Community design internship
- PLAN 4051.03: Thesis proposal
- PLAN 4501.06: Thesis project
- PLAN 3015.03: Application of planning law
- six credit hours from core electives list A (Environmental Planning) and six credit hours from core electives list A or list C (electives for either major) at 2000 level or above

Conversion Year requirements for the Honours Major in Urban Design and Planning

- PLAN 4002.06: Urban design studio
- PLAN 4102.03: Community design internship
- PLAN 4101.03: History and theory of urban design
- PLAN 4052.03: Thesis proposal
- PLAN 4502.06: Thesis project
- PLAN 3015.03: Application of planning law
- six credit hours from core electives list B (Urban Design Studies) or list C (electives for either major) at 2000 level or above

Students who may have completed any required courses from the honours year as part of the 90 credit hours of the general BCD program will select alternative core elective credits from the lists to make up the credit hours to a total of 30.

Bachelor of Community Design (Honours) with a Minor in Environmental Studies

The Minor in Environmental Studies is a five credit (30 credit hour) Minor taken in conjunction with the Bachelor of Community Design Honours (it is not available within the three-year BCD program). The Minor in Environmental Studies provides students with an appreciation of the scientific, cultural, economic, historic, legal and social aspects of environmental issues. The student will have the opportunity to earn an additional credential on the degree to recognize the special concentration of courses in environmental studies. Approval for the program is required from the School of Planning and from the Coordinator of Environmental Programs. Students complete all requirements for their Honours Major in addition to those required courses for the Minor. Students may count the course ENV 1000 towards both the BCD requirements and towards the requirement for the Minor. Other courses cannot be counted towards both sets of requirements.

Required Courses

To earn the minor, students complete:

- ENV 1000: Introduction to Environmental Studies (or DSPH)
- PHIL 2401.03: Environmental Ethics
- ENV 3221.03: Environmental Law
- ENV 3501.03: Environmental Problem Solving I
- ENV 3502.03: Environmental Problem Solving II

Elective requirements

Two full credits (12 credit hours) of courses from the following list:

- BIOL 2691.03: Introduction to Marine Life of Nova Scotia
- BIOL 3611.03: Marine Conservation
- CHEM 2401.03: Environmental Chemistry I
- CHEM 4401.03: Environmental Chemistry II
- ECON 2218.03: Economics of Global Warming
- ECON 2338.03: Regional Development
- ECON 3332.03: Resource Economics
- ECON 4503.03: Environmental Economics
- ENV 3001.03: Environmental Science Internship
- ENV 3220.03: Introduction to Environmental Law
- ENV 3226.03: Economic Botany, Plants and Civilization
- ENV 3301.03: Contaminant Site Management
- ENV 3302.03: Enterprise Sustainability

118 School of Planning
among courses at the 2000 level or above in the categories “Urban design studies” (B) or “Electives for either option” (C).

In their Honours year, students earning the Bachelor of Community Design Honours, Double Major in Environmental Planning and Sustainability, must select “core electives” from among courses at the 2000 level or above in the categories “Environmental planning” (A) or “Electives for either option” (C).

In their Honours year, students earning the Bachelor of Community Design Honours, Double Major in Community Design (Urban Design and Planning) and Sustainability, must select “core electives” from among courses at the 2000 level or above in the categories “Urban design studies” (B) or “Electives for either option” (C).

Note: Students must check to ensure they meet the prerequisites for any courses they select. In some cases, courses may be full or unavailable. Some courses may require the instructor’s or department’s consent. Not all courses are offered every year.

Environmental planning option core electives (List A)

- ENV 1004.03: Introduction to Environmental Studies
- ENV 2201.03: Environmental Law
- ENV 3213.03: Administrative Law for Environmental Scientists
- ENV 3300.03: Contaminated Site Management
- ENV 3400.03: Environmental and Ecosystem Health
- ENV 3510.03: Environmental Problem Solving 1
- ENV 3520.03: Environmental Problem Solving 2
- ENV 4010.03: Environmental Impact Assessment
- BIOL 3010.03: Principles of Biology Part I
- BIOL 3011.03: Principles of Biology Part II
- BIOL 3024.03: Introductory Biology - DE
- BIOL 3025.03: Introductory Biology - DE
- OCEA/GEOG/PTHC 2800.03: Climate Change
- BIOL 2601.03: Introduction to Ecology
- BIOL 2602.03: The Flora of Nova Scotia
- BIOL 3601.03: Communities and Ecosystems
- BIOL 3601.03: Nature Conservation
- BIOL 3623.03: Applied Coastal Ecology
- BIOL 3624.03: Urban Freshwater Systems
- ERTH 1090.03: Geology I
- ERTH 1090.03: Geology II
- ERTH 2410.03: Environmental and Resource Geology
- ERTH/GEOG 3440.03: Geomorphology
- PHIL 2460.03: Environmental Ethics
- HIST 1002.03: Introduction to European History
- HIST 1501.03: Comparative Global History
- HIST 1502.03: Origins of Modern Global Society
- HIST 2006.03: The Atlantic World 1450-1600: Colonization
- HIST 2007.03: The Atlantic World 1650-1800: European Empires in the Americas
- HIST 2122.03: Social History of Canada since 1870
- HIST 2221.03: Social History of Canada since 1870
- HIST 2321.03: The Cutting Society? Welfare in Canada since 1900
- ECON 2200.03/2201.03: Intermediate Micro/Macro
- ECON 2218.03: The Canadian Economy in the New Millennium: Economic policy debates for the next decade.
- SLWK 3011.03/3012.03: Perspectives on Social Welfare Policy
- BIOL 2001.03: Social Inequality
- BIOL 3300.03: Introducing to Social Problems
- BIOL 3301.03: Social Problems and Social Policy
- PLAN 4102.03: Urban Economics

Core electives that may count for either Major (List C)

- ARCH 1200.06: Science of the Built Environment
- GEOG 1001.03: Introduction to Human Geography
- HIST/GEOG 3210.03: Canadian Cultural Landscapes

Bachelor of Community Design (Honours, Major) with a Minor in Geography

The Bachelor of Community Design (Honours, Major) requires that the student select a specified number of credit hours from the approved list of electives provided by the Undergraduate Coordinator. The following courses are approved for the Bachelor of Community Design (Honours, Major) with a Minor in Geography.

Program core electives for the Bachelor of Community Design (Honours, Major) with a Minor in Geography

Each program in Community Design requires that the student select a specified number of credit hours from the approved list of core electives. The following courses are approved for the Bachelor of Community Design (Honours, Major) with a Minor in Geography.

In their Honours year, students earning the Bachelor of Community Design Honours, Double Major in Environmental Planning and Sustainability, must select “core electives” from among courses at the 2000 level or above in the categories “Environmental planning” (A) or “Electives for either option” (C).

In their Honours year, students earning the Bachelor of Community Design Honours, Double Major in Community Design (Urban Design and Planning) and Sustainability, must select “core electives” from among courses at the 2000 level or above in the categories “Urban design studies” (B) or “Electives for either option” (C).
II. Courses Offered

Not all courses are offered every term. Please consult the university timetable for current listings.

- POLI 1002.03: Introduction to Community Design 1
- POLI 1003.03: Introduction to Community Design 2
- POLI 2001.03: Community Design Methods
- POLI 2002.03: Community Design Context
- POLI 2005.03: Community Design Process
- POLI 2006.03: Space, Place and GIS
- POLI 2009.03: Sustainable Community Design
- POLI 2012.03: Design Drawing
- POLI 3001.03: Landscape Ecology
- POLI 3002.03: Cities and the Environment in History
- POLI 3003.03: Urban Ecology
- POLI 3004.03: Site Infrastructure
- POLI 3005.03: Land Development Economics
- POLI 3006.03: Urban Economics
- POLI 3007.03: Regional Planning
- POLI 3008.03: History and Theory of Landscape Architecture
- POLI 3009.03: Housing Theory
- POLI 4020.03: Independent Study
- ARCH and PLAN (any course for which the School and the course instructor
  have given permission for the BID student to enroll)
- PLAN 1001.03: Introduction to Community Design 1
  - This course introduces community design by exploring the characteristics of
    human and natural communities, the connections between them, and the types of
    interventions designers and planners can make to help people create good living
    environments. Community design involves applying scientific and creative
    approaches to helping communities accommodate human needs while respecting
    the environment.
  - FORMAT: Lecture 3 hours (plus tutorial)

- PLAN 1002.03: Introduction to Community Design 2
  - This course builds on the lessons from Introduction to Community Design 1 by
    exploring how designers affect the form, structure, and character of human
    settlements. It examines principles of design, and helps students understand
    the processes and techniques for documenting, testing, and communicating
    ideas. Students will work on a community design project.
  - PREREQUISITE: PLAN 1001.03
  - FORMAT: Lecture 3 hours (plus tutorial)
  - PREREQUISITE: PLAN 1001.03

- PLAN 2001.03: Landscape Analysis
  - Designers and planners need to understand the influence of physical, biological,
    and cultural systems on landscape evolution, and the relevance of that information
    in analyzing land capability. Students develop inventory and analysis tools for
    understanding environmental processes and their implications for design and
    planning. There will be field trips and a lab component.
  - FORMAT: Lecture/lab 3 hours (plus tutorial)
  - PREREQUISITE: Concurrent GEOG/ERTH/SCIE 3600.03

- PLAN 2002.03: Community Design Methods
  - This course explores the design theory, processes, principles, and methods
    that inform community design. Students will develop design literacy and skills,
    and engage in problem-solving exercises and projects.
  - PREREQUISITE: Concurrent GEOG/ERTH/SCIE 3600.03
  - FORMAT: Lecture 3 hours

- PLAN 2005.03: Community Design Context
  - Our communities are shaped by a wide range of factors as varied as the way we
    organize power within our government system, the significance of the profit
    motive in our economy, and our cultural desire to separate work and home. This
    course considers various governance, economic, social, demographic, and service
    issues that influence the shape and regulation of communities and landscapes in
    the contemporary context. It examines a range of scales, from international
    through national, provincial and local.
  - FORMAT: Lecture seminar 3 hours
  - PREREQUISITE: PLAN 1001.03 or concurrent

- PLAN 3005.03: Topics in Community Design
- PLAN 3015.03: Computers in Community Design and Planning
- PLAN 3225.03: Plants in the Human Landscape
- PLAN 4001.03: Environmental Planning Studio
- PLAN 4002.03: Urban Design Studio
- PLAN 4101.03: History and Theory of Urban Design
- PLAN 4102.03: Urban Economics
- PLAN 4103.03: Land Development Economics
- PLAN 4105.03: Transportation Planning
- PLAN 4107.03: Regional Planning
- PLAN 4111.03: Housing Theory
- PLAN 4110.03: Topics in Planning
- PLAN 4002.03: Community Design Internship
- PLAN 3002.03: Community Design Methods
- PLAN 3005.03: Computers in Community Design and Planning
- PLAN 3225.03: Plants in the Human Landscape
- PLAN 4001.03: Environmental Planning Studio

- PLAN 4002.03: Urban Design Studio
- PLAN 4101.03: History and Theory of Urban Design
- PLAN 4102.03: Urban Economics
- PLAN 4103.03: Land Development Economics
- PLAN 4105.03: Transportation Planning
- PLAN 4107.03: Regional Planning
- PLAN 4111.03: Housing Theory
- PLAN 4110.03: Topics in Planning
- PLAN 4200.03: Independent Study

III. Course Descriptions

Not all courses are offered every term. Please consult the university timetable for
the current listings. Instructors may change.
PLAN 2006.03: Space, Place and Geographic Information Systems.

Planners use Geographical Information Systems (GIS) for data collection, coordination, and analysis. Properly interpreted, GIS data contribute to informed decision-making. This course explores the application of GIS in planning within a project-centric setting. Students learn to use GIS to address land use and site planning issues. The course also considers mapping standards used within the field of planning, and examines legal, privacy, and ethical implications of using GIS data in the public realm.

FORMAT: Lecture/lab 3 hours
PREREQUISITE: PLAN/GEOG 2001
CROSS-LISTING: GEOG 2006.03
EXCLUSION: PLAN 2015.03

PLAN 2010.03: Sustainable Community Design.

Through case studies and collaborative design projects, this course explores how the form of communities can change in response to new environmental awareness, shifting economic conditions, emerging technologies, and a focus on sustainable local action.

FORMAT: Lecture 3 hours
PREREQUISITE: PLAN 3001.03 and PLAN 1002.03, or SUST 1000.06

PLAN 2025.03: Design Drawing.

This course allows students to enhance their design literacy skills through attention to graphic design, layout, composition, and typography. Students will become familiar with and gain experience in a range of drawing techniques to enhance their skills in design drawing and portfolio presentation.

FORMAT: Lecture/lab 3 hours
PREREQUISITE: PLAN 3001.03 and PLAN 1002.03, or SUST 1000.06

PLAN 3001.03: Landscape Ecology.

Landscapes reflect the interaction of natural and cultural processes. This course introduces the principles of ecology to landscape analysis. It explores relationships between environmental components in the landscape to inform community design and land use planning applications.

FORMAT: Lecture/lab 3 hours
PREREQUISITE: PLAN/GEOG 2001.03, PLAN 2006.03
CROSS-LISTING: GEOG 3001.03

PLAN 3002.03: Reading the City.

Any city reflects the history of its topography, cultural traditions, and design interpretations. This course introduces the principles, theories, and methods of urban form analysis in the local urban context. Students explore the local urban environment to interpret what the city means, and how it comes to take the shape it does.

FORMAT: Lecture/lab 3 hours
CROSS-LISTING: PLAN 5012.03

PLAN 3005.03: Cities and the Environment in History.

The contemporary landscape reflects a long history of human activity on the land and design and planning interventions through time. Civilizations rise and fall, often because of their degradation of the ecosystems that support them. This course examines the relationship of cities with the environment to enhance our understanding of landscape change, urban form and patterns in human settlement through the ages.

FORMAT: Lecture 3 hours
CROSS-LISTING: PLAN 5005.03, GEOG 3003.03

PLAN 3006.03: Reading the Landscape.

Any landscape reflects its natural and cultural history. This course explores principles, theories, and methods of landscape interpretation. These approaches will be applied to community design problems in local landscapes.

FORMAT: Lecture/lab 3 hours
PREREQUISITE: PLAN 3001.03, 3002.03
CROSS-LISTING: GEOG 3006.03

PLAN 3010.03: Urban Ecology.

More than three-quarters of Canadians, and more than half the world's population, live in urban settings. This course treats the urban system as habitat made by and for people, and takes an ecological approach to the flows of energy and materials which sustain urban life possible. Students study their own behavior and surroundings, comparing their observations with data from Canada, North America, and the rest of the world. This leads to discussions about the health and sustainability of urban communities.

FORMAT: Lecture/seminar 3 hours
CROSS-LISTING: PLAN 5010.03

PLAN 3015.03: Site Infrastructure.

The course examines the role of infrastructure in community design and site planning. Students are introduced to principles of grading, access, service provision, and cost estimating. Key exercises allow students to apply theory to practical projects.

FORMAT: Lecture/lab 3 hours
PREREQUISITE: PLAN 2001.03 or permission of the instructor
CROSS-LISTING: PLAN 5015.03

PLAN 3020.03: Landscape Design.

This course introduces principles and methods of site design. It pays special attention to social, natural, and technical components as factors in adapting sites for human use. Practical projects allow students to develop deeper insight into the challenges and opportunities of landscape design.

FORMAT: Lecture/lab 3 hours
PREREQUISITE: At least one of PLAN 2002.03, PLAN 2023.03, or PLAN 2025.03
CROSS-LISTING: PLAN 5020.03

PLAN 3025.03: Representation in Design.

The course explores techniques of representation in community design work. It examines design drawing conventions such as orthographic, perspective, and perspective projections. It helps students develop their awareness of design approaches and their skills in design presentation.

FORMAT: Lecture/lab 3 hours
PREREQUISITE: PLAN 2002.03 or PLAN 2023.03 or ARCH 2025.03
CROSS-LISTING: PLAN 5025.03

PLAN 3031.03: Geology and Land Use Planning - Exploring the Connections.

This lecture and seminar course explores the influence of geology in the evolution of human settlement, geological opportunities and constraints to land and community development, the sources and formats of geophysical information available and useful to planners and community designers and how to access and use the information.

FORMAT: Lecture/seminar/field trip 2 hours weekly plus one full day field trip.
PREREQUISITE: PLAN/GEOG 2001.03 or ERTH 1080.03 and 1090.03 or 10 credits

PLAN 3035.03: Application of Planning Law.

This course explores the application of planning law to the field of community design. The course introduces students to the legal processes and statutory requirements for land use planning in Canada, with particular reference to Nova Scotia.

FORMAT: Lecture/seminar 3 hours
PREREQUISITE: PLAN 2005.03 or permission of instructor

PLAN 3040.03: Reading the Suburbs.

An increasing proportion of Canadians live in the suburbs. This course explores issues related to planning and designing the suburbs, and develops techniques for analyzing and developing community form in the suburban environment.

FORMAT: Lecture 3 hours
PREREQUISITE: PLAN 2005.03
CROSS-LISTING: PLAN 5040.03

PLAN 3045.03: Community Design Practice.

Community-building constitutes an important component of the Canadian economy. This course explores the financial, regulatory, social, and ethical issues of development practice. Using a case study approach, it examines examples of community design projects and initiatives in Canadian communities. Students gain insight into the financing, planning, and building of projects from the perspectives of the development industry.

FORMAT: Lecture 3 hours
PREREQUISITE: PLAN 3001.03 or concurrent

PLAN 3050.03: Topics in Community Design.

This course provides opportunities to examine selected topical issues in community design.

FORMAT: Lecture/seminar 3 hours
PREREQUISITE: (to be announced for each topic)
CROSS-LISTING: PLAN 5050.03
PLAN 3051.03: Topics in Community Design 2. This course provides opportunities to examine selected topical issues in community design. 
FORMA T: Lecture/seminar 3 hours 
CROSS-LISTING: PLAN 3053.03

PLAN 3052.03: Topics in Community Design 3. This course provides opportunities to examine selected topical issues in community design. 
FORMA T: Lecture/seminar 3 hours 
CROSS-LISTING: PLAN 3053.03

PLAN 3053.03: Topics in Community Design 4. This course provides opportunities to examine selected topical issues in community design. 
FORMA T: Lecture/seminar 3 hours 
CROSS-LISTING: PLAN 3053.03

PLAN 3056.03: Computers in Community Design. This course exploits the opportunities for using computers in community design and planning. Topics may include graphic presentation, business applications (e.g., spreadsheets, databases), computer assisted design, and three dimensional rendering as used in community design and planning. 
FORMA T: Lecture/lab 3 hours 
PREREQUISITE: PLAN 2001.03 or permission of instructor 
EXCLUSION: PLAN 3055.03

PLAN 3060.03: Quantitative Methods for Planners. This course introduces students to quantitative methods, including the use of statistics in planning and community design. It familiarizes students with basic statistical analysis used in the field and helps them develop the ability to evaluate and interpret quantitative data presented by experts. 
FORMA T: Lecture/lab 
PREREQUISITE: Grade 12 Math

PLAN 3225.03: Plants in the Human Landscape. The course covers use of plants for human recreation and aesthetics; in gardens, public parks and urban and suburban landscapes. Topics include: garden design, choice of plant materials, management and maintenance, edible landscaping, use of plants for recreation, and plants and human health. Course will involve field trips and group projects. Students will be expected to complete a design project as part of the coursework. 
FORMA T: Lecture/tutorial 
PREREQUISITE: BIOK 1011.03 or BIOK 1021.03 (C- or better) or DISP or PLAN 2001.03 or permission of instructor

PLAN 4001.06: Environmental Planning Studio. This course provides an applied context for analyzing landscape issues and exploring environmental planning options. Students provide a service to the community by working through projects where local community groups or agencies have identified real needs for information and advice. 
FORMA T: Studio 6 hours 
PREREQUISITE: admission to Honours or graduate program

PLAN 4002.06: Urban Design Studio. This course provides an applied project context for looking at issues related to the design of cities, especially their core areas. Students explore various urban design and planning options. Students provide a service to the local community by working through projects where local community groups or agencies have identified real needs for information and advice. 
FORMA T: Studio 6 hours (one term)

PLAN 4050.03: Thesis Proposal. Students in the honours programs in Community Design develop a thesis proposal for their honours thesis. The course will review appropriate research methods and guide the students through background research, literature synthesis, method development and proposal writing. 
NOTE: Students must achieve a B for eligibility for admission from this course into PLAN 4100.03
FORMA T: Lecture/seminar 3 hours 
PREREQUISITE: Admission to Honours programs in BCD

PLAN 4100.03: Community Design Internship. Students locate a company or organization involved in some element of community design or planning and volunteer for eight hours a week in the office. An internship in a relevant workplace allows students to reflect on the knowledge they can bring to practice. Students will keep a work journal, prepare an internship report, and make a brief presentation on the placement at the end of term. Students will meet with the course coordinator for occasional seminars. 
FORMA T: Independent study/seminar 
PREREQUISITE: PLAN 4001.06 or 4002.06 (limited to Honours BCD students)

PLAN 4101.03: History and Theory of Urban Design. This course introduces the history and theory of urban design as a distinct and evolving area of professional knowledge and skill within the spectrum of planning and design concerns and specialties. 
FORMA T: Lecture/seminar 
CROSS-LISTING: PLAN 6101.03
RESTRICTION: Honours or graduate students in the Faculty of Architecture and Planning, or permission of instructor

PLAN 4105.03: Land Development Economics. This course applies basic techniques for analyzing the financial feasibility of land development projects. Case studies focus particular attention on methods of financing and analyzing real-estate development within the planning framework. 
FORMA T: Lecture/seminar 
CROSS-LISTING: PLAN 6105.03
RESTRICTION: Honours or graduate students in the Faculty of Architecture and Planning, or permission of instructor

PLAN 4106.03: Transportation Planning. This course considers transportation trends, the transport needs associated with different activities, and the impact of transport facilities on land development to offer a critical analysis of the interplay between lands uses and transportation. Technology, the costs of supplying transport facilities and the demand outlook for different modes are examined. The emphasis is on urban transportation, mobility demands and the supply of efficient and environmentally sound transport facilities. 
FORMA T: Lecture/seminar 3 hours 
CROSS-LISTING: PLAN 6106.03

PLAN 4108.03: History and Theory of Landscape Architecture. This lecture and seminar course deals with changing landscapes and perceptions of the natural world during the past 250 years. It discusses the effects of technology and resource use on the design of landscapes as small as a private garden and as large as a bio-region, and examines the changing role of landscape architects, their writings and their collaboration with architects. 
FORMA T: Lecture/seminar 
CROSS-LISTING: PLAN 6108.03

PLAN 4120.03: Citizen Engagement and Consultation. This course examines the conceptual foundations and practice of citizen participation, especially in the context of planning and development decisions by municipal and provincial governments. The course explores how the techniques or methods of engagement can be used to more effectively involve individual citizens and stakeholder groups in community decisions. 
FORMA T: Lecture and seminar 
PREREQUISITE: Honours students in the Faculty of Architecture and Planning, or permission of instructor

PLAN 4123.03: Negotiation and Conflict Management. This course explores the world of interpersonal communication, conflict and negotiation and the variety of approaches and range of skills needed to solve problems, reach agreements and maintain relationships. It will enable participants to understand the positive and negative dimensions of conflict, analyze the dynamics of formal and informal negotiations, and interact with others with greater awareness, intention and skill. 
FORMA T: Lecture with experiential exercises 
PREREQUISITE: Honours students in the Faculty of Architecture and Planning, or permission of instructor

CROSS-LISTING: PLAN 6123.03

PLAN 4125.03: History and Theory of Urban Design. This course introduces the history and theory of urban design as a distinct area of professional knowledge and skill within the spectrum of planning and design concerns and specialties. 
FORMA T: Lecture/seminar 
CROSS-LISTING: PLAN 6125.03

PLAN 4126.03: Land Development Economics. This course applies basic techniques for analyzing the financial feasibility of land development projects. Case studies focus particular attention on methods of financing and analyzing real-estate development within the planning framework. 
FORMA T: Lecture/seminar 3 hours 
CROSS-LISTING: PLAN 6126.03

Restricrion: Honours or graduate students in the Faculty of Architecture and Planning, or permission of instructor.
PLAN 4131.03: Planning of Coastal Communities and Regions.
Land use and community planning address coastal protection and land development with planning tools that are integral to coastal zone management. This course explores the theory and application of strategic, spatial and community planning for managing the challenges of environmental change and development pressures in coastal regions and communities. FORMA T: Lecture/seminar/field trip 3 hours weekly plus one full day field trip. PREREQUISITE: PLAN/GEOG 3001.03 or 12.5 credits (75 credit hours) and permission of the instructor

PLAN 4150.03: Topics in Planning.
This course provides opportunities to examine selected topical issues in planning in a seminar discussion. FORMA T: Seminar PREREQUISITE: PLAN 2006.03, or permission of instructor CROSS-LISTING: PLAN 6150.03 RESTRICTION: Restricted to honours or graduate students in the Faculty of Architecture and Planning

PLAN 4151.03: Topics in Planning II.
This course provides opportunities to examine selected topical issues in planning in a seminar discussion. FORMA T: Seminar PREREQUISITE: Restricted to honours or graduate students in the Faculty of Architecture and Planning, or permission of instructor CROSS-LISTING: PLAN 6151.03

PLAN 4152.03: Topics in Planning III.
This course provides opportunities to examine selected topical issues in planning in a seminar discussion. FORMA T: Seminar PREREQUISITE: Restricted to honours or graduate students in the Faculty of Architecture and Planning, or permission of instructor CROSS-LISTING: PLAN 6152.03

PLAN 4153.03: Topics in Planning IV.
This course provides opportunities to examine selected topical issues in planning in a seminar discussion. FORMA T: Seminar PREREQUISITE: Restricted to honours or graduate students in the Faculty of Architecture and Planning, or permission of instructor CROSS-LISTING: PLAN 6153.03

PLAN 4200.03: Independent Study.
A student in the honours major may undertake an independent reading or research project under faculty supervision. The student will prepare a proposal that must be signed by the project supervisor and the Director of the School. The proposal will set out a work plan and projected outcomes. FORMA T: Directed study PREREQUISITE: permission of instructor and School

PLAN 4500.06: Thesis Project.
Honours students in their final semester work on advanced design or research projects related to their Major concentration. Students will be organized into advanced teams working relatively independently on coordinated topics. The course uses a project management model which simulates professional practice. Each student prepares an individual thesis project report and presents it orally. FORMA T: Studio 6 hours PREREQUISITE: PLAN 4001.06 or 4002.06 (limited to students in the Major), and PLAN 4050.03 (with a minimum grade of B)
Introduction

The College of Arts and Science, established in 1988, consists of the Faculty of Arts and Social Sciences and the Faculty of Science. The College of Arts and Science meets to discuss matters of concern common to its units, in particular those relating to academic programs and regulations. The Dean of Arts and Social Sciences and the Dean of Science alternate, year by year, as Provost of the College. The Provost chairs College meetings and prepares the agenda for those meetings. Administrative responsibility for what is decided in College meetings remains in the two Faculties. Undergraduate degrees are offered through fourteen Departments in the Faculty of Arts and Social Sciences, and ten Departments and three programs in the Faculty of Science. There are several interdisciplinary programs of instruction in the College, the responsibility for which is shared among members from different Departments.

The College of Arts and Science is responsible for the curriculum of Bachelor of Arts, Bachelor of Science, and Bachelor of Music degree programs, and for diploma programs in Meteorology and Costume Studies. The College is also responsible for the establishment of academic regulations governing students registered in its programs.

The College of Arts and Science consists of several groups: some 6,100 undergraduate students who typically spend three or four years in the College, nearly 450 full-time teaching and research faculty and staff as well as a number of part-time teachers and teaching assistants, and a support staff of administrative assistants and technicians. The student's academic role is to learn from teachers, from laboratory experience, from books, from other students, and from solitary contemplation. Students learn not only facts but concepts, and what is most important, they learn how to learn.

Through intellectual interaction with other members of the academic community, undergraduate students should gain the background knowledge, the ability and the appetite for independent discovery. Their acquisition of these components of liberal education is marked formally by the award of a Bachelor’s degree. The academic faculty has two equally important roles: to teach the facts, concepts, and methods that the student must learn, and to contribute to the advancement of human knowledge through research and through scholarly or artistic activity.

The goal of the Bachelor’s degree is to produce educated persons with competence in one or more subjects. Such competence includes not only factual knowledge but, more importantly, the ability to think critically, to interpret evidence, to raise significant questions, and to solve problems. A BA or a BSc degree often plays a second role as a prerequisite to a professional program of study.

BA and BSc degree programs in the College are of three types: the four year or 120 credit hour degree with Honours; the four year or 120 credit hour degree with a Major; and the three year or 90 credit hour degree with a minor.

The College is particularly proud of the Honours programs that it offers in most subjects to able and ambitious students. The BA or BSc with Honours is distinguished from the BA or BSc Major (120 credit hours) or the BA or BSc (90 credit hours) in that a higher standard of performance is expected, a greater degree of concentration of credit hours in one or two subjects is required, and at the conclusion of the program each student must receive a grade which is additional to those for the required 120 credit hours. Frequently, Honours students obtain this grade by successfully completing an original research project under the supervision of a faculty member. Completion of a BA or BSc with Honours is an excellent preparation for graduate study at major universities throughout the world. Dalhousie is distinguished among Canadian universities in offering BA programs with Honours in most subjects in which it also provides BSc Honours programs and in providing BA and BSc degree programs with Combined Honours in an Arts and a Science subject.
College of Arts and Science Degree Requirements

Following is a list of the faculty requirements needed to satisfy degree programs in the College of Arts and Science. Details of these requirements can be found on the pages following these lists. Departmental requirements can be found in the appropriate department/faculty listing in this calendar. Please note that students must satisfy both department and faculty requirements. Before registering for the second year, each student in the College of Arts and Science must declare a subject of concentration and obtain program advice from a faculty advisor in the appropriate department.

Requirements for degree programs other than College of Arts and Science can be found in the appropriate department/school/college/faculty listing.

1. General

The following information applies generally to all of the programs offered within the College of Arts and Science.

A. Subject Groupings

The various subjects in which instruction is offered are placed in one or more of the groups below. In the BA degree, each program must include six credit hours in subjects chosen from each of the three subject groups (1, 2, and 3 below), normally within the first 60 credit hours of any BA degree. In the BSc degree, each program must include six credit hours in subjects chosen from each of two subject groups (1 and 2).

1. Languages and Humanities

Arabic, Canadian studies, Chinese (Mandarin), classics, comparative religion, contemporary studies, creative writing, early modern studies, English, European studies, French, gender and women’s studies, German, Greek, history, history of science and technology, Italian studies, King’s Foundation Year, Latin, music, philosophy, religious studies, Russian, Spanish, theatre and the course “First Year Seminar: Arts and Social Sciences” (ASSC 1200.03).

2. Social Sciences

Anthropology, biochemistry, biology, chemistry, computer science, earth sciences, economics, gender and women’s studies, history, history of science and technology, international development studies, King’s Foundation Year, political science, psychology, sociology and social anthropology, and sustainability (for BA only).

3. Life Sciences and Physical Sciences

Botany and molecular biology, biology, chemistry, computer science, earth sciences, economics, engineering, environmental science, human physiology* (for BA only), informatics, marine biology, mathematics, microbiology and immunology, neuroscience, oceanography, physics, psychology, science, statistics, and sustainability (for BA only).

* Offered by the Faculty of Medicine. See section E, Electives, for limit on courses from other Faculties.

B. Writing Course

One of the first 30 credit hours chosen should be selected from a list of courses in which written work is considered frequently and in detail. These writing courses are approved by the Writing Across the Curriculum committee and are listed below:

- CLAS 1000X/Y.06, 1010X/Y.06
- CLAS 1000X/Y.06
- Integrated Science Program
- ENGL 1001.03
- Any two of ENGL 1010.03, 1020.03, 1040.03, 1090.03, 1100.03
- GERD 1020X/Y.06, GERD 1060.06
- HIS 1000X/Y.06, HIST 1010X/Y.06, HIST 1030.03, HIST 1060.03
- HISTC 1001.03, 1101.03 (both must be successfully completed in order to satisfy the Writing Requirement)
- JOUR 1010X/Y.06
- King’s Foundation Year
- OCLA 1000X/Y.06
- PHIL 1000X/Y.06
- POLG 1100X/Y.06
- RELS 1000X/Y.06
- RUSH 1020X/Y.06/1070X/Y.03 (both must be successfully completed in order to satisfy the Writing Requirement)
- RUSH 2010.03, 2012X/Y.03 (both must be successfully completed in order to satisfy the Writing Requirement)
- SCE 1111.03 (satisfies the requirement for BSc students only)
- SODE 1000X/Y.06
- SUET 1000.06
- THEA 1000X/Y.06, 1300X/Y.06

* Offered by the School of Journalism. See section E, Electives, for limit on courses from other Faculties.

The Writing Course may also be used to satisfy one of the subject groupings. Courses which satisfy the Writing Requirement are identified by the following symbol and notation in their formal description:

Writing Requirement

C. Mathematics Requirement (Bachelor of Science)

In order to qualify for a BSc degree candidates are required to complete successfully at least six credit hours in mathematics or statistics other than MATH 1001.03, 1002.03, 1003.03, 1101.03, 1200.03, or 1151.03. A course taken to satisfy this requirement cannot also satisfy the requirement of a course from section A, Overview.

Students may also satisfy this requirement by completing the Integrated Science Program year or passing the test which is administered by the Department of Mathematics and Statistics. Such students must nevertheless complete 90 or 120 credit hours in order to graduate.

D. Language Course (Bachelor of Arts)

Students should consider becoming fluent in French. BA students are required to obtain six credit hours from the following language courses:

- ARIC 1020X/Y.06 (Arabic)
- CANV 1000X/Y.06 (Mandarin)
- CLAS 1000X/Y.06 (Greek), 1080X/Y.06 (Latin), 1010X/Y.06 (Hebrew)
- FREN (any course taught in French)
- GERD 1010X/Y.06, 1050X/Y.06, 1090X/Y.06
- ITAL 1010X/Y.06, 1101X/Y.06
- RELS 2600X/CLAS 2600X/03 and RELS 1600X/CLAS 1600X/03 both must be completed
- RUSH 1000X/Y.06, RUSH 1002X/RUSH 1001 (both must be successfully completed in order to satisfy the Language Requirement)
- SPAN 1010X/Y.06

For students with advanced language skills, upper-level language courses may be substituted. Consult the Registrar’s Office if you require further information. A
Degree Requirements

BSc degree. The courses taken to satisfy this requirement cannot also satisfy the requirement of a course from section I.

Students may satisfy this requirement by passing one of the tests administered by the language departments. Such students must nevertheless complete 90 or 120 credit hours in order to graduate. BA students who choose to major in economics, philosophy, political science, psychology or sociology and social anthropology may substitute for a language course at least six credit hours in mathematics or statistics taught by the Department of Mathematics and Statistics, other than MATH 1001.03, 1002.03, 1003.03, 1101.03, 1102.03, or 1111.03, to meet this requirement; or they may meet it by passing the test administered by the Department of Mathematics and Statistics.

A course taken to satisfy this requirement cannot also satisfy the requirement of a course from section II.

E. Electives

Students may choose electives from any of the courses offered by teaching units within the College of Arts and Science, College of Sustainability, and the Faculty of Computer Science. In addition, without prior permission, electives are permitted as follows provided prerequisites are met and the consent of the instructor(s) is obtained when necessary:

Bachelor of Arts
- 12 credit hours from courses offered in other faculties OR
- 12 credit hours from courses offered in other faculties and 12 credit hours in Commerce OR
- 24 credit hours in Commerce

Please note that BA students registered for minors in Business, Law and Society, Health Studies, Community Design, Journalism or other minors approved for students within the College of Arts and Science are permitted to take the courses necessary to satisfy the requirements for the minor. In addition, 12 credit hours from courses offered in other faculties are permitted.

BA/BEng

Students may count as electives a total of 36 engineering credit hours. In addition 12 credit hours from courses offered in other faculties are permitted.

Bachelor of Science
- 12 credit hours from courses offered in other faculties OR
- 12 credit hours from courses offered in other faculties and 12 credit hours in Commerce OR
- 24 credit hours in Commerce OR
- 30 credit hours in Engineering or Food Science courses and 12 credit hours from courses offered in other faculties

Please note that BSc students registered for any approved minor (see pp. 132 - 143) are permitted to take the courses necessary to satisfy the requirements for the minor. In addition, 12 credit hours from courses offered in other faculties are permitted.

BSc/BEng

Students may count as electives a total of 54 engineering credit hours. In addition 12 credit hours from courses offered in other faculties are permitted.

F. Cross-listed Courses

Please note that cross-listed courses will count as one subject only for the purpose of satisfying degree requirements, e.g., ECON 2260.03 cross-listed with MATH 2000.03 may count either as a mathematics course or economics course but not both.

II. Programs

A. BA/BSc (120 Credit Hour) Programs

The 120 credit hour degree is the standard BA or BSc degree. There are a variety of programs within the 120 credit hour degree. Each is designed to develop some level of concentration of knowledge and expertise.

1. Major Programs

A major program focuses a student’s studies, but not to the extent that an honours program does. Unlike the honours degree, the major degree may not be adequate for admission to graduate programs. Students interested in a major program are advised to seek detailed information from the department in which they wish to concentrate their studies.

1.a BA (120 Credit Hour)

- First Year
  - No more than 18 credit hour equivalents of the first 30 credit hours taken may be in a single subject
  - 6 credit hours in a writing course (see page 125)
  - 6 credit hours in one or more language/humanities subjects (see section A1, page 125)
  - 6 credit hours in one or more social science subjects (see A2, page 125)
  - 6 credit hours in one or more life or physical science subjects (see A3, page 125)
- A minimum of 30, maximum of 54 credit hours in the major subject beyond the 1000 level, including 18 credit hours beyond the 2000 level.
- Within the last 90 credit hours, complete 6 credit hours in each of two subjects other than the major.
- Total credit hours required above 1000 level - 72
- Total credit hours required for degree - 120
- Required GPA for graduation - 2.00
- Graduation with distinction - 3.70
- May be combined with minor(s)

Bachelor of Arts major subjects: classics, English, European studies, French, German, gender and women’s studies, history, international development studies, music, philosophy, political science, religious studies, Russian studies, sociology and social anthropology, Spanish, theatre, or any of the BSc major subjects.

1.b BSc (120 Credit Hour)

- an approved writing course (see page 125)
- 6 credit hours in one or more language/humanities subjects (see 1, page 125)
- 6 credit hours in one or more social science subjects (see 2, page 125)
- 6 credit hours in math (see page 125)
- A minimum of 30, maximum of 60 credit hours in the major subject beyond the 1000 level, including 18 credit hours beyond the 2000 level.
- Total credit hours required above 1000 level - 72
- Total credit hours required for degree - 120
- Required GPA for graduation - 2.00
- Graduation with distinction - 3.70
- May be combined with minor(s)

Bachelor of Science major subjects: biochemistry and molecular biology, biology, chemistry, earth sciences, economics, environmental science, marine biology, mathematics, microbiology and immunology, neuroscience, ocean sciences, physics, psychology, or statistics.

1.c BSc Major (120 Credit Hour) Science Co-operative Education

Requirements are as for the major program with the addition of the following:

- A minimum of three 12-credit hour terms

Co-operative Education in Science Programs

The aim of co-op education programs is to enable students to combine their studies with work experience. The programs are thus year-round, including Summer
School, and will normally require from 48 to 52 months for completion. Co-op degree programs conform to the requirements for the major degree.

The following departments currently offer co-op programs: Biochemistry and Molecular Biology, Chemistry, Earth Sciences, Economics, Marine Biology, Mathematics and Statistics, Microbiology and Immunology, and Physics and Atmospheric Science. For details on these programs, consult the calendar entries for the departments and the Cooperative Education in Science section, page 490.

2. Double Major programs

The double major program allows study in two disciplines of equal or comparable interest.

2.a BA Double Major (120 Credit Hour)

- First Year
  - No more than 18 credit hour equivalents of the first 30 credit hours taken may be in a single subject.
  - 6 credit hours in a writing course (see page 125)
  - 6 credit hours in one or more language/humanities subjects (see section A1, page 125)
  - 8 credit hours in one or more social science subjects (see A2, page 125)
  - 6 credit hours in one or more life or physical science subjects (see A3, page 125)
  - 6 credit hours in a single-language subject for (see D, page 125)

- A minimum of 60, maximum of 84 credit hours in the major subject beyond the 1000 level are to be in the two allied subjects, with no more than 48 credit hours and no fewer than 30 credit hours in either, including at least 12 credit hours beyond the 2000 level in each of the two major subjects. The major subject with the most advanced credits appears first on the record.
  - Within the last 90 credit hours, complete six credit hours in a single subject other than the two major subjects.
  - Total credit hours required above 1000 level - 72
  - Total credit hours required for degree - 120
  - Required GPA for graduation - 2.00
  - Graduation with distinction - 3.70
  - May be combined with minor(s)

Bachelor of Arts double major subjects: Choose both subjects from the Bachelor of Arts and Bachelor of Science major subjects, or Computer Science (in a second subject only), or combine one BA major subject with Environment, Sustainability and Society. In addition to the BA major subjects listed in section 1.a, Canadian studies, music, and creative writing are also available as one of the subjects in a double major. European studies is not available in the double major program.

2.b BSc Double Major (120 Credit Hour)

- an approved writing course (see page 125)
  - 6 credit hours in one or more language/humanities subjects (see 1, page 125)
  - 6 credit hours in one or more social science subjects (see 2, page 125)
  - 6 credit hours in math (see page 125)
  - Minimum of 60 and a maximum of 84 credit hours in the two major subjects beyond the 1000 level, with no more than 44 credit hours and no fewer than 30 credit hours in either, including at least 12 credit hours beyond the 2000 level in each of the two major subjects. The major subject with the most advanced credit hours appears first on the record.
  - Total credit hours required above 1000 level - 72
  - Total credit hours required for degree - 120
  - Required GPA for graduation - 2.00
  - Graduation with distinction - 3.70
  - May be combined with minor(s)

BSc double major subjects: Choose both subjects from the Bachelor of Science major subjects listed in 1.b, or combine one of the BSc major subjects with computer science or Environment, Sustainability and Society; or, provided the larger number of major credit hours is in a science subject, one of the BSc major subjects (except European studies) or Canadian studies, creative writing, or Music.

3. Honours Programs

Honours programs require a higher quality of work than is required by the other undergraduate programs of the college (such as the 90 credit hour degree and 120 credit hours major). Able and ambitious students are urged to enter these programs. There are two types of honours programs in the BA (concentrated and combined) and three types in the BSc (concentrated, combined, and multidisciplinary). Applications for admission to honours programs must be made to the departments concerned on forms available in departments, at the Registrar’s Office or online at http://www.ualberta.ca/honours.

Students should apply in their second year. If application is made later, it may be necessary to make up some work not previously taken.

For each individual student the entire honours program, including elective credit hours, is subject to supervision and approval by the department or departments concerned, or in the case of multidisciplinary honours, by an interdisciplinary committee.

NOTE: The last day to apply to an honours program is September 19.

3.a BA Concentrated Honours (120 Credit Hour)

- First Year
  - No more than 18 credit hour equivalents of the first 30 credit hours taken may be in a single subject.
  - 6 credit hours in a writing course (see page 125)
  - 6 credit hours in one or more language/humanities subjects (see section A1, page 125)
  - 6 credit hours in one or more social science subjects (see A2, page 125)
  - 6 credit hours in one or more life or physical science subjects (see A3, page 125)
  - 6 credit hours in a single-language subject for (see D, page 125)

- A minimum of 30, maximum of 54 credit hours in the major subject beyond the 1000 level, including 18 credit hours beyond the 2000 level.
  - Within the last 90 credit hours, complete 6 credit hours in each of two subjects other than the major.
  - Total credit hours required above 1000 level - 72
  - Total credit hours required for degree - 120
  - Required GPA for graduation - 2.00
  - Graduation with distinction - 3.70
  - May be combined with minor(s)

- Honours Qualifying Examination: At the conclusion of an honours program a student’s record must show a grade which is additional to the grades for the courses taken to obtain the required 120 credit hours. This grade may be obtained through a comprehensive examination, the presentation of a research paper (which may be an extension of one of the courses), or such other method as may be determined by the committee or department supervising the student’s program. The method by which this additional grade is obtained is referred to as the Honours Qualifying Examination. Departments may elect to use a pass/fail grading system for this examination. Unless pass/fail grading is employed, the grade must be “B-“ or better for honours, and “A-“ or better for first class honors.
  - Required standing for graduation: Arts and Social Sciences subjects require a GPA of 2.70 (3.70 for first class) on courses in the honours subject.
  - Science subjects (see below) require a GPA of 3.00 (3.70 for first class) in the honours subject.
  - May be combined with minor(s)

Note: If the student has a minor, courses in the honours subject and the minor are included in the GPA.

Bachelor of Arts concentration honours subjects: classics, English, European studies, French, German, history, international development studies, music, philosophy, political science, religious studies, Russian studies, social anthropology, sociology, Spanish, and theatre or any of the BSc honours subjects.

3.b BSc Concentrated Honours (120 Credit Hour)

- an approved writing course (see page 125)
  - 6 credit hours in one or more language/humanities subjects (see 1, page 125)
  - 6 credit hours in one or more social science subjects (see 2, page 125)
  - 6 credit hours in math (see page 125)
  - Minimum of 54 credit hours with a grade of C or better, maximum of 66 credit hours beyond the 1000 level in the honours subject.
  - Total credit hours required for degree - 120
  - Total credit hours required above 1000 level - 72

- Honours Qualifying Examination: At the conclusion of an honours program a student’s record must show a grade which is additional to the grades for the courses taken to obtain the required 120 credit hours. This grade may be obtained through a comprehensive examination, the presentation of a research paper (which may be an extension of one of the courses), or such other method as may be determined by the committee or department supervising the student’s program.

- May be combined with minor(s)
Bachelor of Science combined honours subjects: biochemistry and molecular biology, chemistry, earth sciences, economics, environmental science, marine biology, mathematics, microbiology and immunology, neuroscience, ocean sciences, physics, psychology and statistics.

3.c BSc Combined Honours (120 Credit Hour)

• First Year
  No more than 18 credit hour equivalents of the first 30 credit hours taken may be in a single subject.
  • 6 credit hours in a writing course (see page 125)
  • 6 credit hours in one or more language/humanities subjects (see section A1, page 125)
  • 6 credit hours in one or more social science subjects (see A2, page 125)
  • 6 credit hours in one or more life or physical science subjects (see A3, page 125)
  • 6 credit hours in a single language subject for (see D, page 125)
• Total credit hours required for degree - 120
• Total credit hours required above 1000 level - 72
• Minimum of 66, maximum of 84 credit hours beyond the 1000 level in two allied subjects, not more than 45 credit hours nor fewer than 30 credit hours being in either of them. Grade must be "C" or better, otherwise, course will not count toward degree.

Within the last 90 credit hours, 12 to 24 depending on the number selected in the honours subjects - elective credit hours.

Honours Qualifying Examination: see concentrated honours program above for details.

Required standing for graduation:
Arts and Social Sciences subjects require a GPA of 3.00 (3.70 for First Class) on courses in the honours subjects.
Science subjects (see below) require a GPA of 3.00 (3.70 for First Class) in courses in the honours subjects.

• Required standing for graduation:
  BA Combined Honours (120 Credit Hour)
  • Honours Qualifying Examination: see concentrated honours program above for details.
  • Required standing for graduation:
  GPA of 3.00 (3.70 for First Class) on courses in the honours subjects.
  • May be combined with minor(s)

Bachelor of Science multidisciplinary honours subjects - at least 54 credit hours of the 120 selected must be from the following subjects: biochemistry, biology, chemistry, computer science, earth sciences, economics, environmental science, mathematics, microbiology and immunology, neuroscience, physics, psychology and statistics.

3.f BSc Honours Science Co-op (120 Credit Hour)

Requirements are as for appropriate honours program (described above) with the addition of the following:

• A minimum of three co-op work terms.

3.g Joint Honours: Dalhousie University - Mount Saint Vincent University

Special arrangements exist under which students may be permitted to pursue an honours program jointly at Dalhousie and Mount Saint Vincent universities. Interested applicants should consult the appropriate department of their own university at the beginning of the second year. Prospective joint honours students must be accepted by the honours departments concerned at both institutions. These departments supervise the entire program of study of accepted applicants. Students should be aware that not all courses available for credit at Mount Saint Vincent University can be given credit at Dalhousie and vice versa. In order for students to gain a joint honours degree they must satisfy all requirements of both institutions.

4. College of Sustainability Degree Programs

The College of Sustainability offers a Double Major and Combined Honours program with any subject in the College of Arts and Science. For complete details about the College, its programs, major/honours requirements and courses please see the College of Sustainability section on page 44 of the Calendar.

5. Minor Programs

Minor programs comprise a minimum of 18 and a maximum of 27 credit hours in a defined subject area, above the 1000 level. Students minoring in a Faculty of Science subject may take up to 36 credit hours in the minor subject. Minors can be added to any 120 credit hour BA or BSc degree. If a minor is added to a double major or a combined honours program, students may find that they need to take more than 120 credit hours to complete all of their degree requirements. For BA students, when a minor subject is taken in conjunction with an honours program, grades in the minor subject must be "C" or better. Please note that a course cannot be used to satisfy both the major or honours subject requirement and the minor requirement. Please refer to the list below for minor options.

5.a Minor Options - College of Arts and Science

The following minor options are available to students within the Faculty of Arts and Social Sciences and the Faculty of Science:

• Abrahamic Religions
• American Studies
At least three credit hours must be taken from each of the Judaism, Christianity of 18 credit hours to a maximum of 27 credit hours, chosen from the lists below. Students declaring a Minor in the Abrahamic Religions will complete a minimum Consult specific departmental pages for minor requirements or the list below.

5.b Minor Requirements

Consult specific departmental pages for minor requirements or the list below.

Minor in Abrahamic Religions

Students declaring a Minor in the Abrahamic Religions will complete a minimum of 18 credit hours to a maximum of 27 credit hours, chosen from the lists below. At least three credit hours must be taken from each of the Judaism, Christianity and Islam lists; RELS 3019 and 3382 may each be used to satisfy parts of this requirement.

Judaism courses

• RELS 2001.03: Judaism
• RELS 2220.01: Ancient Israel
• RELS 3018.01: Migrations between Hellenism and the East to Philo the Jew
• ARBC 3090.03: Arabic Philosophical Texts: Maimonides
Or
• RELS 4011.03: Jewish Philosophy: Maimonides
• RELS 4019.03: Philo Judensis

Christianity courses

• RELS 2281.03: Christian Beginnings: The Orthodox and Oriental Churches
• RELS 2282.03: Christian Beginnings: Catholicism
• RELS 3099.03: Christianity in the Lands of Islam
• RELS 3381.03: Medieval Philosophy from Anselm to Augustine
• RELS 3411.01: St. Augustine's Confessions I
• RELS 3412.01: St. Augustine's Confessions II
• RELS 3431.03: St. Augustine's On The Trinity Part I
• RELS 3432.01: St. Augustine's On The Trinity Part II
• CLAS 3841.03: Latin Philosophical Texts: Aquinas Texts
• CLAS 3842.03: Latin Philosophical Texts: Anselm and Bonaventure Texts
• RELS 4070.03: The Confessions in Latin
• CLAS 4400.06: Philosophy of the Church Fathers
• RELS 4014.03: Christian Theology in Islamic Lands: John of Damascus

Islam courses

• RELS 2003.01: Islam
• RELS 2052.01: Cultural Introduction to the Arab World
• ARBC 3040.03: Arabic Philosophical Texts: al-Ghazali
Or
• RELS 4010.03: Islamic Philosophy: al-Ghazali
• RELS 3001.03: Islam and the Others
• RELS 3012.01: Sulaiman
• RELS 2503.03: Classical and Medieval History of Islamic Civilization
• RELS 3380.03: Sultans and State: Polity and Religion in the Islamic Gunpowder Age
• CLAS 5002.03: Classical and Medieval History of the Persianate World

Bridging courses

• RELS 2210.01: Philosophy and God
• RELS 3000.03: Topics in Religious Studies
• RELS 3019.03: Migrations between Hellenism, Judaism, Christianity, and Islam until the Renaissance
• RELS 3382.03: Medieval Philosophy from Arabic and Jewish Thinkers to Aquinas
• RELS 3910.06: Neoplatonism: Plato and Neoplatonism
• RELS 4486.04: Medieval Interpreters of Aristotle
• CLAS 4500.06: Seminar on Neoplatonism

Note: Not all courses are offered each year. Please consult with the timetable for courses offered.

Minor in American Studies

Requirements: 18 credit hours to be selected from the list below. Student minoring in American Studies must take at least three credit hours from each of the three participating departments: ENGL, HIST, POLI. Please note that not all courses are offered each year.

ENGL 2003 American Literature
ENGL 2070 African American Literature
ENGL 3061 American Literature to 1865
ENGL 3062 American Literature 1865 - 1914
ENGL 3070 20th Century American American
ENGL 3220 American Literature of the Earlier Twentieth Century
ENGL 3221 American Literature of the Later Twentieth Century
ENGL 3245 British Literature
ENGL 4017 William Faulkner and Toni Morrison
ENGL 4022 Ellison and Everett
ENGL 4024 Hollywood Fiction
ENGL 4281 Literature and Television
ENGL 4400 Nature and American Culture
Degree Requirements

Minor in Ancient History

Students must take 18 credit hours from the following list, including the listed language courses:

- CLAS 2810.06 Latin Prose
- CLAS 2700.06 Intermediate Greek
- CLAS 2710.06 Greek Prose

Not more than six credit hours ancient language may be counted towards the minor.

Minor in Ancient Philosophy

Students must take 18 credit hours from the following list, including the listed language courses.

The courses are to be chosen from the lists below and must include at least nine credit hours chosen from:

- CLAS 2563.03 Plato and the Case of Socrates: Philosophy on Trial
- CLAS 2564.03 Gods, Beasts and the Political Animal: Plato, Aristotle, and their Legacy
- CLAS 3400.06 The Dialogues of Plato
- CLAS 3500.06 Aristotle

Philosophy courses

- CLAS 2024.03 Philosophy and God
- CLAS 2027.03 Magic, Religion and Philosophy
- CLAS 2563.03 Plato and the Case of Socrates: Philosophy on Trial
- CLAS 2564.03 Gods, Beasts and the Political Animal: Plato, Aristotle, and their Legacy
- CLAS 3016.03 Meetings between Hellenism and the East to Philo the Jew
- CLAS 3017.03 Meetings between Hellenism, Judaism, Christianity, and Islam until the Renaissance
- CLAS 3400.06 The Dialogues of Plato
- CLAS 3411.03 St. Augustine’s Confessions I
- CLAS 3412.03 St. Augustine’s Confessions II
- CLAS 3431.03 St. Augustine’s On the Trinity Part I
- CLAS 3432.03 St. Augustine’s On the Trinity Part II
- CLAS 3500.06 Aristotle
- CLAS 3590.06 The Philosophy of Aristotle
- CLAS 5010.06 Neoplatonism: Plato and Neoplatonism
- CLAS 4000.03 Dogmatism and Prosyntactic Poetry: and Prose in the Construction of Philosophy
- CLAS 4019.03 Plato’s Judgment
- CLAS 4400.06 Philosophy of the Church Fathers
- CLAS 4500.06 Seminar on Neoplatonism
- CLAS 4601.03 Hellenistic Philosophy - Stoics and Epicureans
- CLAS 4602.03 Hellenistic Philosophy - From Scepticism to Neoplatonism

Not more than six credit hours of a language course may be counted towards the minor.

- CLAS 2710.06 Greek Prose
- CLAS 2730.06 Intermediate Greek
- CLAS 2810.06 Latin Prose

Minor in Applied Ethics

Requirements

At least 18 credit hours and no more than 27 credit hours in Philosophy beyond the 1000 level, including at least three credit hours beyond the 2000 level.

Select at least three credit hours from the following:

- PHIL 2110.03 Logic: Deduction
- PHIL 2110.03 Logic: Induction
- PHIL 2110.03 Reasoning Skills
- PHIL 2110.03 How to Win an Argument
- PHIL 2110.03 Logic: Understanding Scientific Reasoning

Select:

- PHIL 2105.03 Ethics
- PHIL 2105.03 Ethics
- PHIL 2105.03 Ethics
- PHIL 2105.03 Ethics

Minor in Celtic Studies

- ENGL 4815 American Gothic
- ENGL 4400 New York in Fiction and Poetry
- ENGL 4456 American Literature of the Great Depression
- ENGL 4609 Myth and Dick in Context
- ENGL 4803 Race and Gender in American Speculative Fiction

HIST 2331 Creation of the American Republic
- HIST 2332 The American Republic, 1840-1900
- HIST 2333 Political Reform in Twentieth Century America
- HIST 2334 Modern American Culture
- HIST 2335 The American Century
- HIST 2340 The Cold War
- HIST 2358 Slavery, Gender and Power: Women in Nineteenth Century America
- HIST 3361 The American Civil War and Reconstruction
- HIST 3362 The Vietnam War
- HIST 3368 America in the 1950's
- HIST 3369 America in the 1960s
- HIST 3370 North American Landscape
- HIST 3372 The Cuban Missile Crisis
- HIST 3375 Springing on the World: The CIA in American History
- HIST 3374 The Objectionary Question in American History
- HIST 3380 Slavery and Freedom in the Americas
- HIST 4360 Slavery and American Political Culture
- HIST 4390 The Homegrown of American Foreign Relations, Post 1945

POLI 2300 Comparative Politics
- POLI 2340 Canadian-American Relations
- POLI 2394 Comparative Federalism
- POLI 3378 USA Constitution, Government and Politics
- POLI 3411 Politics Through Film and Literature
- POLI 3440 The Politics of Fear
- POLI 3522 Comparative Political System Simulation
- POLI 3574 American Foreign Policy
- POLI 4422 Politics of Reason, Passion, Biology
- POLI 4512 The Politics of North America

HIST 2340 The Cold War
- HIST 2336 The American Century
- HIST 2335 The American Century
- HIST 2334 Modern American Culture
- HIST 2333 Political Reform in Twentieth Century America
- HIST 2332 The American Republic, 1840-1900
- HIST 2331 Creation of the American Republic

Note: Not all courses are offered each year. Please consult with the timetable for courses offered.
Minor in Arab Studies

Students must take 18 credit hours from the following list:

- ARAB 2020.06
- ARAB 2030.03 Advanced Arabic I
- ARAB 3031.03 Advanced Arabic II
- ARAB 3400.03 Arabic Philosophical Texts: al-Ghazali or RELS 4010.03
- ARABIC 3500.03 Arabic Philosophical Texts: Maimonides or RELS 4011.03
- ARABIC 3501.03 Jewish Philosophy: Maimonides
- ARABIC 3100.03 Arabic Pro-Islamic Poetry
- CLAS 2201.03 Christian Beginnings: The Oriental and Eastern Churches
- CLAS 2617.03 Meetings between Hellenism, Judaism, Christianity, and Islam until the Renaissance
- CLAS 3021.03 Medieval Philosophy from Arabic and Jewish Thinkers to Aquinas
- RELS 2003.03 Islam
- RELS 3003.03 Islam and the Others
- RELS 3009.03 Christianity in the Lands of Islam
- RELS 3012.03 Judaism
- RELS 4011-03 Christian Theology in Islamic Lands: John of Damascus

Note: Not all courses are offered each year. Please consult with the timetable for offerings.

Minor in Biochemistry and Molecular Biology

A Minor in Biochemistry and Molecular Biology is available to non-Biochemistry students in a 120 credit hour degree program within the College of Arts and Science. The Minor is also available to students in some other Faculties (please consult the appropriate section for your Faculty in the Undergraduate calendar).

Departmental Requirements

- A minimum of 18 credit hours in Biochemistry (BIOC) courses at the 2000 level or higher

Please note that there are prerequisite requirements for entry into upper level Biochemistry (BIOC) courses. Some non-BIOC courses such as BIOL 2021.03, BIOL 2020.03, CHEM 2401.03 and CHEM 2402.03 are required for the Biochemistry and Molecular Biology degree program. These non-BIOC courses cannot be counted as part of the 18 credit hours in BIOC required for a minor.

Minor in Bioethics

Requirements

At least 18 credit hours and no more than 27 credit hours in Philosophy beyond the 1000 level, excluding at least three credit hours beyond the 2000 level.

Select at least three credit hours from the following:

- PHIL 2130.03 Logic: Deduction
- PHIL 2011.03 Reasoning Skills
- PHIL 2090.03 How to Win an Argument
- PHIL 2060.03 Logic: Understanding Scientific Reasoning

Select:

- PHIL 3105.03 Ethics

Select at least nine credit hours from the following:

- PHIL 2001.03 Ethics & Health Care: Patient Care
- PHIL 2010.03 Ethics & Health Care: Social Policy
- PHIL 2720.03 Ethics and the Good Life
- PHIL 4001.03 Topics in Ethics and Health Care

Minor in Business

A Minor in Business is available to students in the Faculty of Science. The Minor is also available to students in some other Faculties (please consult the appropriate section for your Faculty in the Undergraduate calendar).

A BSc or BA (90 credit hour) degree program with a Minor in Business is available to students in the Faculty of Science.

Departmental Requirements

- A minimum of 18 credit hours in Business (BIOL) courses at the 2000 level or higher

Please note that upper level Biology (BIOC) courses have prerequisite requirements.

Minor in Chemistry

The minor in Chemistry is available to students registered in the BA, BSc 120 credit hour major and honours programs. The requirements are as for the appropriate degree program with completion of the following credit hours:

- COMM 2202.03
- COMM 2303.03
- COMM 2401.03
- COMM 3511.03
- six credit hours in Chemistry at or above the 2000 level

Additionally, students are responsible for completing the following required prerequisite courses:

- COMM 1010.03
- COMM 1101.03
- COMM 1502.03
- ECON 1011.03
- ECON 1102.03
- For BA: MATH 1115.03
- For BSc: MATH 1010.03 or MATH 1011.03 or MATH 2010.03

Minor in Canadian Studies

At least 18 credit hours in French (a course in an aboriginal language may be substituted, as a transfer credit).

Required:

- A minimum of 15 and a maximum of 21 credit hours from the list of electives:
  - CANA 3000.03 and CANA 4000.03 may count towards this requirement.

Minor in Canadian Studies (BA)

A minimum of 18 credit hours in Canadian Studies above the 1000 level. Within those 18 credit hours, students must include CHIN 2030.06, and at least six credit hours above the 2000 level.

Note: Minor degree program is available until 2015/2016 academic year.

Minor in Classical Literature

Students must take 18 credit hours from the following list:

- CLAS 2100.05 Gods, Heroes, and Monsters: Ancient Mythology
- CLAS 2315.03 Myth in Film 1: the Greek World
- CLAS 2700.06 Intermediate Greek
- CLAS 2710.06 Greek Prose
- CLAS 2800.06 A Study of Latin Prose and Poetry
- CLAS 2810.06 Latin Prose
- CLAS 3511.03 Greek Tragedy
- CLAS 3513.03 Ancient Comedy
- CLAS 3523.03 Ancient Greek Epic
- CLAS 1700.06 Advanced Greek
- CLAS 3760.06 Reading and Research of Greek Texts
- CLAS 3800.06 Roman Satire
- CLAS 3810.06 A Short History of Latin
- CLAS 3820.06 Advanced Latin Literature: Augustan Poetry and Prose
- CLAS 3850.06 Reading and Research of Latin Texts

Department Requirements

- A minimum of 15 and a maximum of 21 credit hours in Latin (LATN) courses at the 2000 level or higher.
Minor in Classics

Students declaring a Minor in Classics will complete 18 credit hours in Classics at the 2000 level or higher. Students seeking a minor in Early Modern Studies must complete 18 credit hours in EMSP. Students are required to complete at least one of the three “core” courses in CTMP (CTMP 2000.06, CTMP 3000.06, CTMP 4000.06). Students must also complete at least six credit hours at the 3000 or 4000 level (CTMP 3000.06 or CTMP 4000.06 will also fulfill this requirement), and six other credit hours at the 2000 level or above.

Minor in Contemporary Studies

Requirements

Students seeking a minor in Contemporary Studies must complete 18 credit hours in CSP. Students are required to complete at least one of the three “core” courses in CSP (CSP 2000.06, CSP 3000.06, CSP 4000.06). Students must also complete at least six credit hours at the 3000 or 4000 level (CSP 3000.06 or CSP 4000.06 will also fulfill this requirement).

Minor in Early Modern Studies

Requirements

Students seeking a minor in Early Modern Studies must complete 18 credit hours in EMSP. Students are required to complete at least one of the three “core” courses in EMSP (EMSP 2000.06, EMSP 3000.06, EMSP 4000.06). Students must also complete at least six credit hours at the 3000 or 4000 level (EMSP 3000.06 or EMSP 4000.06 will also fulfill this requirement).

Minor in Earth Science

A Minor in Earth Sciences is available to non-Earth Science students in a 120 credit hour degree program within the College of Arts and Science. The Minor is also available to students in some other Faculties (please consult the appropriate section for your Faculty in the Undergraduate calendar). A BSc or BA (90 credit hour) degree program with a Minor in Earth Sciences is available to students in the Faculty of Science.

Departmental Requirements

• six credits in EHRS at the 3000 level, including EMSP 3000.03 and EMSP 4000.03 (Geology I)
• A minimum of 18 credit hours in Earth Sciences (EHRS) courses at the 2000 level or higher, must include at least six credit hours at the 3000 level or higher

Minor in Economics

A Minor in Economics is available to non-Economics students in a 120 credit hour degree program within the College of Arts and Science. The Minor is available to students in some other Faculties (please consult the appropriate section for your Faculty in the Undergraduate calendar). A BSc or BA (90 credit hour) degree program with a Minor in Economics is available to students in the Faculty of Science.

Departmental Requirements

• ECON 1101.03/ECON 1102.03
• A minimum of 18 credit hours in Economics (ECON) courses at the 2000 level or higher

Minor in English

Any 24 credit hours in English at or above the 2000 level. At least three credit hours must be 3000 level or above.
Minor in Environment, Sustainability and Society

Please see Environment, Sustainability and Society of the Faculty of Arts and Social Sciences section in this Calendar.

Minor in Environmental Science

A Minor in Environmental Science is available to non-Environmental Science students in a 120 credit hour degree program within the College of Arts and Science. The Minor is also available to students in some other Faculties (please consult the appropriate section for your Faculty in the undergraduate calendar).

Departmental Requirements
- A minimum of 18 credit hours in Environmental Science (ENVS) courses at the 2000 level or higher

Minor in Environmental Studies

BA students must complete 12 credit hours of required courses and 18 elective credit hours from the list of approved courses below. Note: In planning their programs students must take into account the prerequisites which apply to many of the elective courses listed below. The following rules apply to the selection of courses for the Minor:
- A minimum of three credit hours in the Major subject (i.e., a course beyond those required for the Major) can count instead toward the Minor.
- At least six credit hours from the Approved Electives list must be in FASS courses and at least six credit hours must be from Science Approved Electives courses.
- In addition to ENV 3200.03, at least nine credit hours must be at the 3000 level or above.

See page 185 for requirements.

BSc students must complete 18 credit hours of required courses, plus 12 credit hours from the approved list of elective courses below. Note: In planning their programs students must take into account the prerequisites which apply to many of the elective courses listed below. The following rules apply to the selection of courses for the Minor:
- No course can fulfill a requirement of both the Major or Honours subject and the Minor.
- A maximum of three credit hours in the Major/Honours subject (i.e., a course beyond those required for the Major/Honours) can count toward the Minor.
- At least three credit hours beyond the required courses must be at the 3000 level or above.

Additions to the Elective list will be made as relevant courses become available.

Required Courses
- ENV 3200.03: Introduction to Environmental Science OR Dalhousie Integrated Science Program, SCE 3538, 1520.06, 1530.01, 1540.27
- PHIL 2400.03: Environmental Ethics
- ENV 3501.03: Environmental Problem Solving I
- ENV 3502.03: Environmental Problem Solving II
- ENV 3503.03: Introduction to Environmental Law

Electives (12 credit hours from the list)
- BIOC 2601.03: The Flora of Nova Scotia
- BIOC 2605.03: Introduction to the Marine Life of Nova Scotia
- BIOC 3065.03: Resource Ecology
- BIOC 3225.03: Plants in the Human Landscape
- BIOC 3226.03: Economic Botany, Plants and Civilization
- BIOC 3401.03: Nature Conservation
- BIOC 32xx.05: Any ecology-related course at 3000-level or above
- BIOC 4065.05: Sustainability and Global Change
- BIOC 4105.05: Environmental Microbiology
- BIOC 4106.05: Political Ecology
- CHEM 2500.03: Environmental Chemistry I
- CHEM 4200.03: Environmental Chemistry II
- CHEM 4205.03: Atmospheric Chemistry
- CTMP 3210.03: Interacting Bodies, Solvers and Environment
- CTMP 3220.03: The Aesthetics of Nature
- ERTH 2203.03: Sediments and Sedimentary Rocks
- ERTH 2403.03: Environmental and Resource Geology I
- ERTH 3403.05: Environmental and Resource Geology II
- ERTH 3410.03: Environmental Geology 2
- ERTH 3420.03: Geochemistry of Aquatic Environments
- ERTH 3440.03: Geomorphology
- ERTH 3500.03: Geoscience Information Management
- ERTH 4450.03: Introduction to Landscape Simulation
- ERTH 4502.03: Micropalaeontology and Global Change
- ERTH 4520.03: GIS Applications to Environmental and Geological Sciences
- ERTH 4530.03: Environmental Remote Sensing
- ICON 2210.03: Emerging Giants: the Economic Rise of China and India
- ICON 2214.03: Economics of Global Warming
- ICON 3332.03: Resource Economics
- CTMP 3333.03: Environmental Economics
- ENV 2100.03: Environmental Informatics
- ENV 3903.03: Environmental Science Internship
- ENV 4213.03: Administrative Environmental Law: Natural Justice and Unnatural Acts
- ENV 3223.03: International Law for Environmental Scientists
- ENV 3225.03: Plants in the Human Landscapes
- ENV 3226.03: Economic Botany, Plants and Civilization
- ENV 3300.03: Contaminated Site Management
- ENV 3310.03: Enterprise Sustainability
- ENV 3400.03: Human Health and Sustainability
- ENV 3500.03: Geoscience Information Management
- ENV 3615.03: Methods in Ecology
- ENV 3616.03: Applied Field Methods in Fish Ecology
- ENV 3681.03: Dendal Readings in Environmental Science
- ENV 4601.03: Environmental Impact Assessment
- GEOG 2400.03: Climate Change
- HIST 3370.03: North American Landscapes
- INTD 2001.03: Introduction to Development I
- INTD 2002.03: Introduction to Development II
- INTD 3304.03: Sustainable Development in Cults
- MIG 4104.03: Environmental Microbiology
- MIGA 4200.06: The Blue Planet
- MIGA 4201.03: Global Climate Change
- MIGA 4103.03: Introduction to Geological Oceanography
- MIGA 4104.03: Introduction to Physical Oceanography
- MIGA 4105.03: Introduction to Chemical Oceanography
- MIGA 4106.03: Introduction to Biological Oceanography
- PHIL 2475.03: Justice in Global Perspective
- PHIL 2483.03: Technology and the Environment
- PHYC 2800.03: Climate Change
- PHYC 2804.03: The Blue Planet
- PHYC 2805.03: Earth and Space
- PHYC 2810.03: Astronomy 1: The Sky and Planets
- PHYC 2811.03: Astronomy 2: The Zodiac and Beyond
- PHYC 2815.03: Climate Change
- PLAN 2001.03: Landscape Analysis
- PLAN 3003.03: Landscape Ecology
- PLAN 3002.03: Reading the City
- PLAN 3003.03: Cities and the Environment in History
- PLAN 3010.03: Urban Ecology
- PLAN 3025.03: Landscape Design
- PLAN 4106.03: Transportation Planning
- POLI 3303.03: Politics of Climate Change
- POLI 3383.03: Politics of the Environment
- POLI 3389.03: Politics of the Sea
- POLI 3590.03: Politics of the Sun II
- SOSC 2100.06: Environment and Culture
- SOSC 3211.03: Community and Change in Rural Society
- SOSC 3220.03: Coastal Communities in the North Atlantic

Minor in Film Studies

Please see Environment, Sustainability and Society of the Faculty of Arts and Social Sciences section in this Calendar.
Courses within the core program survey the history of film from the late nineteenth century to the present day and introduce students to various aspects of film theory and criticism. Courses at the intermediate and advanced level provide opportunities to study specific genres, directors, national cinemas as well as interdisciplinary topics: narration and narrative in fiction and film, feminist film practices, music and film.

This is an inter-University program that allows students to obtain credit hours from any of the participating institutions.

Core Requirements
Students must complete one and a half credits of core courses, including:

- DAL THEA 2301.03: Film History I 0.5 credits or NSCAD ARTS 2300: Film History and Criticism 0.5 credits
- DAL THEA 3310.03/CHIN 3050.03: Topics in Asian Cinema 0.5 credits
- DAL THEA 3309.03: Film History II 0.5 credits or NSCAD ARTS 2310: Film History and Criticism 1940 - Present 0.5 credits
- DAL THEA 2311.03: Film Analysis 0.5 credits or SMU ENGL 2311: Reading Film 0.5 credits

Students are strongly advised to take the core courses as soon as they declare their film minor.

Elective Requirements
Students must complete two and a half credits from the following list of courses, including at least one and a half credits at the 3000 level or above:

- DAL CHID 1000.03/THEA 3300.03: Topics in Asian Cinema 0.5 credits
- DAL CTMP 3304.03/ENGL 3304.03/GWST 3304.03: Through Her Eyes: Women and the Documentary Tradition 0.5 credits
- DAL CTMP 3305.03: Modern Film and the Theory of the Gaze 0.5 credits
- DAL ENGL 2395.03: Narrative in the Cinema 0.5 credits
- DAL ENGL 3310.03: TV: Theory and Practice 0.5 credits
- DAL ENGL 3314.03/THEA 3314.03: Shakespeare and His Contemporaries on Film 0.5 credits
- DAL FREN 2301.03: Cinema: The French Phenomenon I 0.5 credits
- DAL FREN 2302.03: Cinema: The French Phenomenon II 0.5 credits
- DAL GERM 2304.03: Monsters and Madness in 20th Century German Film 0.5 credits
- DAL GWST 3304.03/CTMP 3304.03/GWST 3304.03: Through Her Eyes: Women and the Documentary Tradition 0.5 credits
- DAL GWST 3311.03/THEA 3311.03: Film Theory II: Desire in Cinema 0.5 credits
- DAL GWST 3320.03/ENGL 3320.03: Topics in Indian Culture: Indian Nationalist Cinema 0.5 credits
- DAL ITAL 3300.03: Italian National Cinema: The New Wave 0.5 credits
- DAL KJUR 3304.03/CTMP 3304.03/GWST 3304.03: Through Her Eyes: Women and the Documentary Tradition 0.5 credits
- DAL MUSC 2306.03: Topics in Music and Cinema 0.5 credits
- DAL MUSC 2317.03: Music and Cinema: Composer-Director Collaborations 0.5 credits
- DAL RUN 2316.03/ENGL 3316.03: Russian Film I 0.5 credits
- DAL RUN 2317.03/THEA 2317.03: Russian Film II 0.5 credits
- DAL RUN 2346.03/THEA 2346.03: East European Cinema: War, Love, and Revolution 0.5 credits
- DAL THEA 3314.03/THEA 3314.03: Shakespeare and He Contemporaries on Film 0.5 credits
- DAL THEA 2303.03/CTMP 2303.03/GWST 2303.03: Through Her Eyes: Women and the Documentary Tradition 0.5 credits
- DAL THEA 2313.03/THEA 2313.03: Film Theory II: Desire in Cinema 0.5 credits
- DAL THEA 2360.03: Popular Cinema 0.5 credits
- DAL THEA 2371.03: Stars and Stardom on Stage and Screen
- DAL THEA 3313.03: Documentary, Experimental and Avant-Garde Film 0.5 credits
- DAL THEA 3330.03: Film Theory I 0.5 credits
- DAL THEA 3331.03/GWST 3331.03: Film Theory II: Desire in Cinema 0.5 credits
- DAL THEA 3350.03/CHIN 3050.03: Topics in Asian Cinema 0.5 credits
- DAL THEA 3351.03: The Cinema of David Lynch 0.5 credits
- DAL THEA 4499.03: Special Topics in Film Studies 0.5 credits
- DAL THEA 4491.03: Special Topics in Popular Cinema 0.5 credits
- NSCAD ARTS 3822: Topics in Film History: Hitchcock’s Films 0.5 credits
- NSCAD ARTS 3826: Topics in Film History: Film Noir and Neo-Noir 0.5 credits
- NSCAD ARTS 3832: Topics in Film History: Canadian Cinema 0.5 credits
- NSCAD ARTS 3835: Topics in Film History: Contemporary Cinemas of Globalization 0.5 credits
- NSCAD ARTS 3836: Topics in Film History: Subjectivities in Moving Pictures 0.5 credits
- NSCAD ARTS 3837: Topics in Film History: On-screen Sex 0.5 credits
- NSCAD ARTS 3850: History and Criticism of Documentary Film 0.5 credits
- SMU ASCT 3365: Moving Images of Atlantic Canada 0.5 credits
- SMU ENGL 3313: Narrative in Film and Film 1 credit
- SMU ENGL 3315: Religions and Film 0.5 credits
- SMU ENGL 3311: Film and the City 0.5 credits
- SMU ENGL 3325: The Media in Everyday Life 0.5 credits
- SMU ENGL 3326: Contemporary Canadian Film and Television 0.5 credits
- SMU HIST 3340: Film and History 0.5 credits
- SMU SOC 3340/CRIM 3330: Crime and the Media 0.5 credits
- SMU SOC 4452: Atlantic Canadian Film and Television

Minor in Food Science

The Minor in Food Science is available to students registered in the BSc 120 Credit Hour Major and Honours programs.

Requirements

The requirements are as for the appropriate program with the completion of the following courses to fulfill the Food Science Minor:

- HPRO 1000.03: Concepts in Food Science
- 48 credit hours from the following list:
  - BIOE 3051.03: Principles of Food Engineering
  - BIOE 3241.03: Industrial Biotechnology
  - CPST 3300.03: Technical Communication
  - CPST 3320.03: Engineering in Society II
  - ENV 3000.03: Fundamentals of Environmental Engineering
  - FORC 3210.03: Food Commodities
  - FORC 3211.03: Food Chemistry
  - FORC 3212.03: Food Analysis
  - FORC 3213.03: Food Quality Assurance
  - FORC 3214.03: Food Processing
  - FORC 3215.03: Food Microbiology
  - FORC 4202.03: Chemistry - Food, Oils, Lipids
  - FORC 4301.03: Food Product Development
  - FORC 4301.03: Brewing Science
  - FORC 4301.03: Food Safety and Biotechnology
  - FORC 4500.03: Seminar in Food Science
  - FORC 4501.03: Food Product Development Project
  - HPRO 2230.03: Introduction to Class in Human Nutrition
  - Other electives as approved by the Food Science Coordinator

Minor in French

Intended to allow for a level of specialization in French in addition to students’ major degree program(s). Cannot be combined with a major or honours in French.

Requirements

- 18 credit hours above the 1000 level, including FREN 2045X/Y 0.6
- Among those 18 credit hours, six credit hours must be above the 2000 level
- Courses given in English and FREN 2045X/Y 0.6

French courses may also be counted towards the Certificate in Intercultural Communication. Students may, in addition to French, be interested in the Minor in European Studies and/or Minor in Medieval Studies; each French course at the 2000 level and above may count toward one major/minor/honours.

Minor in Gender and Women’s Studies

The BA (180 credit hour) option permits a wide range of choice in course selection. A three year degree in Gender and Women’s Studies can prepare a student for work in the residential areas described above, or it can be used as a preparatory degree for professional programs such as Law and Social Work.

The minor may also be added within other 120 credit hour degree programs.

Requirements

- 18 credit hours beyond the 1000 level in Gender and Women’s Studies
- At least three different disciplines shall be represented in a student’s selection of cross-listed Gender and Women’s Studies courses

134 Degree Requirements
NOTE: Students in the BCD program may not select PLAN cross-listed courses that are required courses for their degree program.

Other courses may be possible with departmental approval.

Minor in Hispanic Cultures

Requirements

• SPAN 2100.03
• SPAN 2101.03

And any 12 credit hours from:

• SPAN 2040.03
• SPAN 2080.03
• SPAN 2070.03
• SPAN 2105.03
• SPAN 2109.03
• SPAN 2110.03
• SPAN 2115.03
• SPAN 3099.03

Minor in Hispanic Literature

Requirements

• SPAN 2020C/2026
• SPAN 2060.03
• SPAN 2500.03
• SPAN 2510.03
• SPAN 3125.03 or SPAN 3510.03
• SPAN 3500.03 or SPAN 3525.03

Minor in History

• At least 18 and not more than 27 credit hours in History, beyond the 1000 level.
• At least 12 of these credit hours must be above the 2000 level.

Minor in History of Science and Technology

The Minor in HIST can be combined with any type of BA or BSc program (e.g., Major, Double-Major, Honours) offered by the Faculty of Science or Arts and Social Sciences at Dalhousie. If you are a Dalhousie student and include a Minor in HOST in your studies, your degree is granted by Dalhousie University and the Social Sciences at Dalhousie. If you are a Dalhousie student and include a Minor in HOST in your studies, your degree is granted by Dalhousie University and the University of King’s College or by Dalhousie in association with King’s.

In addition to the Minor in HOST with your degree is an indication of a more limited specialization in this field than the Combined Honours. Although it does not have the same academic status as the Combined Honours degree, it nevertheless will be a valuable enrichment to your transcript, and will indicate your willingness to diversify your studies and to tackle subject matter that crosses the “two cultures” divide between the sciences and the humanities.

The course requirements for the Minor in HOST are as follows:

1. Any one of the following courses:
   • HIST 2000.06
   • HIST 2070.06
   • HIST 2200.06 (or cross listed as SCIE 2000, HIST 2074 and BIOL 3103)
2. Any other 12 credit hours selected from HIST courses (or cross listed with HIST courses) numbered 2000 or above.

Minor in Hispanic Cultures

Requirements

• SPAN 2100.03
• SPAN 2101.03

And any 12 credit hours from:

• SPAN 2040.03
• SPAN 2080.03
• SPAN 2070.03
• SPAN 2105.03
• SPAN 2109.03
• SPAN 2110.03
• SPAN 2115.03
• SPAN 3099.03

Minor in Hispanic Literature

Requirements

• SPAN 2020C/2026
• SPAN 2060.03
• SPAN 2500.03
• SPAN 2510.03
• SPAN 3125.03 or SPAN 3510.03
• SPAN 3500.03 or SPAN 3525.03

Minor in History

• At least 18 and not more than 27 credit hours in History, beyond the 1000 level.
• At least 12 of these credit hours must be above the 2000 level.

Minor in History of Science and Technology

The Minor in HIST can be combined with any type of BA or BSc program (e.g., Major, Double-Major, Honours) offered by the Faculty of Science or Arts and Social Sciences at Dalhousie. If you are a Dalhousie student and include a Minor in HOST in your studies, your degree is granted by Dalhousie University and the University of King’s College or by Dalhousie in association with King’s.

In addition to the Minor in HOST with your degree is an indication of a more limited specialization in this field than the Combined Honours. Although it does not have the same academic status as the Combined Honours degree, it nevertheless will be a valuable enrichment to your transcript, and will indicate your willingness to diversify your studies and to tackle subject matter that crosses the “two cultures” divide between the sciences and the humanities.

The course requirements for the Minor in HOST are as follows:

1. Any one of the following courses:
   • HIST 2000.06
   • HIST 2070.06
   • HIST 2200.06 (or cross listed as SCIE 2000, HIST 2074 and BIOL 3103)
2. Any other 12 credit hours selected from HIST courses (or cross listed with HIST courses) numbered 2000 or above.
Minor in International Development Studies

Advanced Course Requirements:
- INTD 2001.03/2002.03
- INTD 2002.03/2003.03
- six credit hours of INTD and/or IDS approved courses at the 2000 level or above.
- three credit hours at the 3000 level or above.

In total, 18 credit hours in IDS are required.

Minor in Italian Studies

Faculty of Arts

Students seeking a Minor in Italian Studies will be expected to complete SPAN 2020X/Y.06, plus six credit hours from list A and 12 credit hours from list B.

List A: six credit hours/any two of the following:
- SPAN 2070.03
- SPAN 2093.03
- SPAN 2100.03
- SPAN 2110.03
- SPAN 2130.03
- SPAN 2260.03
- SPAN 2314.03
- SPAN 3130.03

Minor in Journalism Studies

Faculty of Arts

Students who wish to take a Minor in Journalism Studies must meet the requirements for the major or honors program in their chosen discipline and successfully complete 24 credit hours in Journalism, including JOUR 1001.06 and JOUR 2000.03 and 15 credit hours in electives.

Core Requirements:
- JOUR 1001.06 Foundations of Journalism
- JOUR 2000.03 Basic Reporting Techniques

Elective Requirements
Students must complete 15 credit hours in electives from the list below:
- JOUR 2004.03 Introduction to Radio
- JOUR 2400.03 Science and the Media
- JOUR 3003.03 Introduction to Video Reporting
- JOUR 3005.03 Broadcast Reporting
- JOUR 3122.03 Ethics of Journalism
- JOUR 3304.03 News Media & the Courts in Canada
- JOUR 3333.03 News Media & the Courts in Canada
- JOUR 3441.03 Advanced Creative-Non-Fiction
- JOUR 3540.03 Feature Writing
- JOUR 3542.03 Business Reporting for Journalists
- JOUR 3550.03 Copy Editing
- JOUR 3557.03 Intro to Online Journalism
- JOUR 3660.03 Photojournalism

Faculty of Science

Students seeking a Minor in Journalism Studies will be expected to complete JOUR 1001.06 and JOUR 2000.03 and 15 credit hours in electives.

Core Requirements:
- JOUR 1001.06 Foundations of Journalism
- JOUR 2000.03 Basic Reporting Techniques

Elective Requirements
Students must complete 15 credit hours in electives from the list below:
- JOUR 2004.03 Introduction to Radio
- JOUR 2400.03 Science and the Media
- JOUR 3003.03 Introduction to Video Reporting
- JOUR 3005.03 Broadcast Reporting
- JOUR 3122.03 Ethics of Journalism
- JOUR 3304.03 News Media & the Courts in Canada
- JOUR 3333.03 News Media & the Courts in Canada
- JOUR 3441.03 Advanced Creative-Non-Fiction
- JOUR 3540.03 Feature Writing
- JOUR 3542.03 Business Reporting for Journalists
- JOUR 3550.03 Copy Editing
- JOUR 3557.03 Intro to Online Journalism
- JOUR 3660.03 Photojournalism

Minor in Latin American Studies

Requirements

Students seeking a minor in Latin American Studies will be expected to complete SPAN 2020X/Y.06, plus six credit hours from list A and 12 credit hours from list B. At least three credit hours must be at the 3000 level or above.

List A: six credit hours/any two of the following:
- SPAN 2060.03
- SPAN 2070.03
- SPAN 2093.03
- SPAN 2100.03
- SPAN 2110.03
- SPAN 2130.03
- SPAN 2260.03
- SPAN 2314.03
- SPAN 3130.03

List B: 12 credit hours from the following:
- HIST 2301.03
- HIST 3003.03
- HIST 3500.03
- HIST 4003.03
- INTD 3002.03
- INTD 3303.03
- INTD 3304.03
- INTD 3310.06
- INTD 3401.03
- POLI 3360.03
- SOCS 3168.03 (or Xlist code GWST 3168.03)

Minor in Law and Society

The minor in law and society is available to students registered in the BA and BSc 120 credit hour major and honours programs. The requirements are as for the appropriate degree program with completion of the following courses:
- LAWS 2300X.Y.06 (with a minimum grade of B+)
- The equivalent of 18 credit hours from the list of approved courses. See Law and Society (FASS) for further details. To count towards the minor, a minimum grade of B- is required.

Minor in Medicine

The minor in medicine is available to students registered in all BA, BSc 120 credit hour Major and Honours programs. The requirements are as for the appropriate degree program, with the following credit hours:
- MGMT 1000.03 and MGMT 1001.03 (Managing Organizational Issues 1 and 2)
- ECON 1101.03 and ECON 1102.03 (Microeconomics and Macroeconomics)
- MGMT 1310.03 (Statistics for Managers)
- 12 credit hours chosen from:
  - MGMT 2101.03 (Financial Accounting)
  - MGMT 2301.03 (People, Work and Organizations 1)
  - MGMT 2401.03 (Introduction to Marketing)
  - MGMT 2801.03 (Government Structure)
  - MGMT 2901.03 (Healthcare Management)
  - MGMT 2701.03 (Resource and Environmental Management)
- 12 credit hours above the 2000 level in MGMT.

Please note that some MGMT courses have additional prerequisite requirements.

Minor in Marine Biology

A Minor in Marine Biology is available to all students in a 120 credit hour degree program other than Marine Biology within the College of Arts and Science. The Minor is also available to students in some other Faculties (please consult the appropriate section for your Faculty in the Undergraduate calendar).

Departmental Requirements
- A minimum of 18 credit hours in Marine Biology (MARB) courses at the 2000 level or higher

Minor in Mathematics

A Minor in Mathematics is available to all students in a 120 credit hour degree program other than Mathematics within the College of Arts and Science. The Minor is also available to students in some other Faculties (please consult the appropriate section for your Faculty in the Undergraduate calendar).

Departmental Requirements
- MATH 1000.05/MATH 1010.03 or MATH 1500.06/X/Y
- MATH 2100
- MATH 2101
- MATH 2120
Minor in Medieval Studies

Students seeking an interdisciplinary minor in Medieval Studies will be expected to take 24 credit hours beyond the 1000 level, including at least 12 credit hours in a language course at or above the 2000 level, and with courses taken from at least two of the participating departments or programs.

Requirements:

- Language work - six credit hours in one of the following languages at or above the 2000 level: Arabic, Latin, Greek, French, German, Italian, or Spanish. Courses treating texts in translation do not count. For languages other than Latin and Greek, courses taught in English do not count.

- And any 18 credit hours selected from the course list below; within these 18 credit hours, courses must be taken from at least two of the participating departments or programs.

- CLAS 3432.03 St. Augustine's On the Trinity
- CLAS 3412.03 St. Augustine's Confessions
- MUSC 4359.03 Studies in Medieval Music (topics vary; check with advisor)
- MUSC 4358.03 Studies in Medieval Music (topics vary; check with advisor)
- Early Music Analysis
- Medieval Music (topics vary; check with advisor)
- Arab and Islamic Studies
- RELS 4011.03 Jewish Philosophy: Maimonide

Minor in Microbiology and Immunology

A Minor in Microbiology and Immunology is available to non-Microbiology students in a 120 credit hour degree program within the College of Arts and Science. The Minor is also available to students in some other Faculties (please consult the appropriate section for your Faculty in the Undergraduate calendar).

Departmental Requirements

- MICT 2100.03
- A minimum of 15 additional credit hours in Microbiology (MIC) courses at the 2000 level or higher

Please note that there are prerequisite requirements for entry into upper level Microbiology (MIC) courses, including BIOL 2020 and BIOL 3031, CHEM 2401 and CHEM 2402 (or CHEM 2441).

Minor in Middle East Studies

Students minoring in Middle East Studies select 18 credit hours from the list below. Students are required to take one of the following: HIST 2502, HIST 2503, HIST 2504, RELS 2001 or RELS 2003. At least three credit hours must be at the 3000 or 4000 level. Please note that not all courses are offered each year.

Second Year

- ARBC 2100: An Introduction to the Arab World (HIST 2505, RELS 2505)
- CLAS 2215: Alexander the Great (HIST 2089)
- CLAS 2220: Ancient Israel (HIST 2310, RELS 2220)
- CLAS 2301: The Orthodox and Oriental Churches
- CLAS 2300 X: Intermediate Hebrew
- CLAS 2302: The Ottoman Empire
- HIST 2303: Classical and Medieval History of Islamic Civilization (RELS 2303)
- HIST 2304: History of the Modern Middle East
- HIST 2305: Modern History of Iraq
- RELS 2001: Judaism
- RELS 2002: Islam
- RELS 2008: Science and Medicine in Islamic Societies, 750-1500

Third Year

- ARBC 3010: Advanced Arabic
- ARBC 3011: Advanced Arabic II (Reading)
- ARBC 3040: Arabic Philosophical Texts (al-Ghazali)
- ARBC 3090: Arabic Philosophical Texts (Maimonides)
- ARBC 3100: Arabic Pre Islamic Poetry
- HIST 3014: Meetings between Islam and the East to the Philo the Jew (HIST 3014, RELS 3014)
- CLAS 3017: Meetings between Hellenism, Judaism, Christianity and Islam (HIST 3017, RELS 3017)
- CLAS 3021: Ancient Art and Architecture
- CLAS 3032: Medieval Philosophy from Arabic and Jewish Thinkers to Aquinas
- CLAS 3040: Islamic Art
- CLAS 3042: Islam
- CLAS 3050: History of Islam
- HIST 3101: Christian History of the Persian Empire (CLAS 3101)
- HIST 3102: History of the Islamic World (CLAS 3102)
- HIST 3103: The Ottoman Empire (CLAS 3103)
- RELS 3001: Islamic Studies
- RELS 3002: Islam
- RELS 3003: Christianity in the Levant and Islam
- RELS 3005: Christianity in the Levant and Islam

Fourth Year

- CLAS 4011: Jewish Philosophy: Maimonide (RELS 4011)
- HIST 4013: John of Damascus (RELS 4013)
- CLAS 4019: Philo-Isaiah
- CLAS 4110 X: Rome and the East
- CLAS 4521 X: The World of Heraclitus

Degree Requirements 137
Minor in Music

Students must complete 18 credit hours in Music beyond the 1000 level. The following courses may not be used to count toward this degree: MUSC 2007.06, MUSC 2022.06, MUSC 2356.06, MUSC 3190.06.

Minor in Musicology

Students must complete 18 credit hours in Musicology courses as follows:

• MUSC 2352.05: Music History III
• six credit hours chosen from:
  • MUSC 2016.03: Topics in Music and Cinema
  • MUSC 2019.03: Popular Music until 1960
  • MUSC 2020.03: The History of Jazz
  • MUSC 2353.05: Music History IV: Focuses Study
  • MUSC 3066.03: Women, Gender and Music
  • MUSC 3144.03: History of Opera
• nine credit hours chosen from 4000 level Musicology seminars as listed below:
  • MUSC 3066.03: Women, Gender and Music
  • MUSC 3144.03: History of Opera
  • MUSC 4135.03: Music since 1945
  • MUSC 4254.03: Popular Music Analysis
  • MUSC 4335.03: Narrative Strategies
  • MUSC 4365.05: Opera Studies
  • MUSC 4105.03/4305.03: Studies in Medieval Music
  • MUSC 4361.06: Advanced Seminar in Baroque Culture
  • MUSC 4361.03/4361.05: Topics in Musicology I
  • MUSC 4362.03: Topics in Canadian Music
  • MUSC 4363.03/4367.03: Topics in Musicology II
  • MUSC 4380.03/4381.05: Selected Composer Studies

Minor in Neuroscience

A Minor in Neuroscience is available to students in a 120 credit hour degree program other than Neuroscience or Psychology within the College of Arts and Science. The Minor is also available to students in some other Faculties (please consult the appropriate section for your Faculty in the Undergraduate calendar).

Departmental Requirements

• A minimum of 18 credit hours in Neuroscience (NESC) courses at the 2000 level, with no more than 9 credit hours taken in a single department.
• At least 18 credit hours and no more than 27 credit hours in Philosophy beyond the 1000 level, including at least 3 credit hours beyond the 2000 level.

Minors in Ocean Sciences

A Minor in Ocean Sciences is available to students in a 120 credit hour degree program other than Ocean Sciences within the College of Arts and Science. The Minor is also available to students in some other Faculties (please consult the appropriate section for your Faculty in the Undergraduate calendar).

Departmental Requirements

• A minimum of 18 credit hours in Ocean Sciences (SCIE) courses at the 2000 level, with no more than 9 credit hours taken in a single department.

Minors in Philosophy

Requirements

At least 18 credit hours and no more than 27 credit hours in Philosophy beyond the 1000 level, including at least 3 credit hours beyond the 2000 level.

Select at least three credit hours from the following:

PHIL 2100.03 Logic: Deduction
PHIL 2003.03 Reasoning Skills
PHIL 2009.03 How to Win an Argument
PHIL 2069.03 Logic: Understanding Scientific Reasoning

Minors in Physics

A Minor in Physics is available to students in a 120 credit hour degree program other than Physics within the College of Arts and Science. The Minor is also available to students in some other Faculties (please consult the appropriate section for your Faculty in the Undergraduate calendar).

Departmental Requirements

• A minimum of 18 credit hours in Physics (PHYS) courses at the 2000 level or higher.

Please note that these are prerequisite requirements for entry into upper level Physics courses (see Department of Physics and Atmospheric Science course listings).

Minor in Political Science

A minimum of 18 credit hours in Political Science is required.

Minor in Popular Culture Studies

Students seeking a minor in Popular Culture Studies will be expected to take 21 credit hours beyond the 1000 level, with six credit hours at or above the 1000 level, and with no more than nine credit hours taken in a single department.

Appropriate courses can be chosen from the following list:

• six credit hours from:
  • CTMP 2316/CHIN 2157.03: East Meets West in Popular Culture
  • EMSP 2131: The Vampire
  • EMSP 2330: Winchertal in Early Modern Europe
  • EMSP 2480: The Prance and Pirate
  • ENGL 2006: Cultural Studies
  • ENGL 2080: Cartoons & Comics
  • ENGL 2095: Narrative in the Cinema
  • ENGL 2231: Foundations of Science Fiction
  • ENGL 2323: Contemporary Science Fiction
  • ENGL 2355: Tolkien: Fantasy & Medieval
  • HIST 2500: Science Fiction in Film
  • MUSC 2016: Topics in Music and Cinema
  • MUSC 2018: Popular Music until 1940
  • MUSC 2019: The Rock‘n’Roll Era and Beyond
  • MUSC 2020: The History of Jazz
  • THEA 2360: Popular Cinema

• six credit hours from:
  • CTMP 3322: Representations of the Holocaust: Remembrance
  • CTMP 3305: Modern Film and the Theory of the Gaze
  • ENGL 1500: TV: Theory & Criticism
  • ENGL 1501: Graphic Novels
  • FREN 1760: Littérature industrielle, roman populaire et roman de consommation. - Popular Literature and the Rise of Mass Culture
  • FREN 1770: Le bande dessinée francophone - The Franco-Belgian Comic Strip
  • JOUR 3560: Great Journalists
  • MUSC 2353.03: Music History IV: Focuses Study
  • MUSC 2354: Popular Music Analysis
  • MUSC 2355.03: Narrative Strategies
  • MUSC 2356.03: Topics in Canadian Music
  • MUSC 2357.03/2358.03: Musical Theory
  • MUSC 2359-2360.03: Music since 1945
  • MUSC 2361-2370.03: Topics in Musicology II
  • MUSC 2371-2380.03: Selected Composer Studies

Minor in Political Science

A minor in Political Science is available to students in a 120 credit hour degree program other than Neuroscience or Psychology within the College of Arts and Science. The Minor is also available to students in some other Faculties (please consult the appropriate section for your Faculty in the Undergraduate calendar).

Departmental Requirements

• A minimum of 18 credit hours in Psychology (PSYO) courses at the 2000 level or higher.

Please note that these are prerequisite requirements for entry into upper level Psychology courses (see Department of Psychology and Atmospheric Science course listings).
OFFERED IN ANY GIVEN YEAR. Students may choose from the following:

PEACE NOTE THAT ONLY SOME OF THESE COURSES WILL BE

Minor in Sociology and Social Anthropology of Economy, Work and Development
This minor requires 18 credit hours above the 1000 level from the list below. Please note that only some of these courses will be offered in any given year. Students may choose from the following courses:

• SOSA 2001.06: Ethnography in Global Context OR SOSA 2002.06: The Sociological Perspective (only one of these two may be included in the minor)
• SOSA 2111.03: There is an Atlantic Canada
• SOSA 2140.03: Going Global: Geography, Economy, and Work in the 21st Century
• SOSA 2141.03: Good Jobs, Bad Jobs
• SOSA 2270.03: Introduction to Popular Culture
• SOSA 2271.03: Popular Culture in a Global Context
• SOSA 2401.06: Food and Eating Across Cultures
• SOSA 3003.03: Knowledge, Work and Culture in the Contemporary World
• SOSA 3004.03: Comparative Perspectives on Gender and Work
• SOSA 3014.03: Rethinking Culture and Class
• SOSA 3060.03: Social Change and Development
• SOSA 3096.03: Introduction to Demography
• SOSA 3163.03: Peoples and Cultures of the World: Selected Area Studies
• SOSA 3164.03: Issues in Latin American Society
• SOSA 3185.03: Issues in the Study of Indigenous Peoples of North America
• SOSA 3200.03: Environmental Anthropology SOSA 3211.03: Continuity and Change in Rural Societies
• SOSA 3213.03: Migration and Identity
• SOSA 3310.03: Indian Society: Change and Continuity

Minor in Sociology and Social Anthropology of Social Justice and Inequality
This minor requires 18 credit hours above the 1000 level from the list below. Please note that only some of these courses will be offered in any given year. Students may choose from the following courses:

• SOSA 2001.06: Ethnography in Global Context OR SOSA 2002.06: The Sociological Perspective (only one of these two may be included in the minor)
• SOSA 2041.03: Describing Social Inequality
• SOSA 2042.03: Explaining Social Inequality
• SOSA 2115.03: African Canadian Society, Culture and Resistance
• SOSA 2180.06: Crime and Criminal Justice
• SOSA 2181.03: Explaining Crime and Criminal Behavior
• SOSA 2182.03: Exploring Crime and Criminal Behavior
• SOSA 2190.06: Comparative Perspectives on Gender
• SOSA 2250.03: Society, Politics, and Culture
• SOSA 3002.03: Native Peoples of Canada
• SOSA 3004.03: Comparative Perspectives on Gender and Work
• SOSA 3013.03: Popular Memory
• SOSA 3015.03: Popular Memory
• SOSA 3100.03: Feminist Perspectives in Sociology and Anthropology
• SOSA 3183.03: Issues in the Study of Indigenous Peoples of North America
• SOSA 3190.03: Social Movements
• SOSA 3206.03: Ethnicity, Race and Nationalism
• SOSA 3213.03: Migration and Identity
• SOSA 3223.03: Culture, Rights and Power
• SOSA 3275.03: Crime and Public Policy
• SOSA 3283.03: Globalized Security and Justice: the Challenge of Global Crime and Terrorism
• SOSA 3284.03: Globalized Security and Justice: the Challenge of Global Crime and Terrorism
• SOSA 3285.03: Sociology of Law
• SOSA 3290.03: Security and the Police

Minor in Sociology and Social Anthropology of Critical Health Studies
This minor requires 18 credit hours above the 1000 level from the list below. Please note that only some of these courses will be offered in any given year. Students may choose any courses from the following list:

• SOSA 2001.06: Ethnography in Global Context OR SOSA 2002.06: The Sociological Perspective
• SOSA 2111.03: There is an Atlantic Canada
• SOSA 2180.06: Crime and Criminal Justice
• SOSA 2181.03: Explaining Crime and Criminal Behavior
• SOSA 2182.03: Exploring Crime and Criminal Behavior
• SOSA 2190.06: Comparative Perspectives on Gender
• SOSA 2250.03: Society, Politics, and Culture
• SOSA 3002.03: Native Peoples of Canada
• SOSA 3004.03: Comparative Perspectives on Gender and Work
• SOSA 3013.03: Popular Memory
• SOSA 3015.03: Popular Memory
• SOSA 3100.03: Feminist Perspectives in Sociology and Anthropology
• SOSA 3183.03: Issues in the Study of Indigenous Peoples of North America
• SOSA 3190.03: Social Movements
• SOSA 3206.03: Ethnicity, Race and Nationalism
• SOSA 3213.03: Migration and Identity
• SOSA 3223.03: Culture, Rights and Power
• SOSA 3275.03: Crime and Public Policy
• SOSA 3283.03: Globalized Security and Justice: the Challenge of Global Crime and Terrorism
• SOSA 3284.03: Globalized Security and Justice: the Challenge of Global Crime and Terrorism
• SOSA 3285.03: Sociology of Law
• SOSA 3290.03: Security and the Police

Minor in Spanish Language Requirements
• SPAN 2010.V:06 and SPAN 3010.03 in the same year
• SPAN 3015.03
• SPAN 3016.03
• SPAN 3020.03 or SPAN 3023.03

Minor in Statistics
A Minor in Statistics is available to all students in a 120 credit hour degree program other than Statistics within the College of Arts and Science. The Minor is also available to students in some other Faculties (please consult the appropriate section for your Faculty in the Undergraduate calendar).

A BSc or BA (90 credit hour) degree program with a Minor in Statistics is available to students in the Faculty of Science.

Departmental Requirements
• A minimum of 18 credit hours in Statistics (STAT) courses at the 2000 level or higher
• Students in Major/Honours programs other than Mathematics may count MATH 2001 and MATH 2030 among the 18 credit hours
1. With Minor

- 6 credit hours in one or more social science subjects (see A. above)
- 6 credit hours in one or more language/humanities subjects (see A. above)
- A minimum of 18, maximum of 27 credit hours in the minor subject at the 2000 level or higher.
- Within the last 90 credit hours, complete 6 credit hours in each of two subjects other than the subject of the minor.
- Total credit hours required above 1000 level - 42
- Total credit hours required for degree - 90
- Required GPA for graduation - 2.00
- Graduation with distinction - 3.70

Bachelor of Arts minor subjects: any of the approved minors in either the Faculty of Arts and Social Sciences or the Faculty of Science. See section 5.a.

C. BSc (90 Credit Hour) Programs

1. With Minor

- an approved writing course (see page 125)
- 6 credit hours in one or more language/humanities subjects (see A. above)
- 6 credit hours in one or more social science subjects (see A. above)
- Required GPA for graduation - 2.00
- Graduation with distinction - 3.70

Bachelor of Science minor subjects: any of the approved minors in the Faculty of Science. See section 5.a.

2. Upgrading of a BA or BSc (90 Credit Hour) to a BA or BSc Major (120 Credit Hour)

A person who holds a Dalhousie BA or BSc (90 credit hour) degree may apply through the Registrar’s Office for admission to a major program. On completion of the required work with proper standing, a conversion certificate will be awarded which has the effect of upgrading the degree to major status.

3. Upgrading of a BA or BSc (90 or 120 Credit Hour) to a BA or BSc Honours (120 Credit Hour)

A person who holds a Dalhousie BA or BSc (90 or 120 credit hour) degree may apply through the Registrar’s Office with the appropriate department advisor(s) approval, to an Honours program. On completion of the required work with proper standing, a certificate will be awarded which has the effect of upgrading the degree to honours status.

D. Concurrent Programs

1. BSc/BeEng

Students who meet the admission requirements for the Bachelor of Science program and the Bachelor of Engineering program are eligible to select this concurrent degree option. Students wishing specific advice should consult the Assistant Dean, Faculty of Science and the Associate Dean, Faculty of Engineering. Students accepted will normally complete the 90 credit hour BSc and the first two years of engineering studies leading to the BEng (Diploma) concurrently in a period of three calendar years. At the end of the three year period, both the degree and the diploma will be awarded to successful candidates. This opportunity should appeal to students with career objectives in multi-disciplinary fields such as biomedical engineering, environmental science, or materials science (among others). It is thus possible to complete the requirements for the Bachelor of Science and Bachelor of Engineering degrees concurrently in a time period of five years in total (or up to six years for co-op programs).

2. BA/BeEng

Students wishing to do so may complete the 90 credit hour BA degree program and the first two years of engineering studies leading to the Diploma in Engineering (Diplom) concurrently in a period of three calendar years. At the end of the three year period, both the degree and the diploma will be awarded to successful candidates. It is thus possible to complete the requirements for the Bachelor of Engineering and the Bachelor of Arts degrees concurrently in a time period of five years in total (or up to six years for co-op programs).

Students who meet the admission requirements for the Bachelor of Arts and Bachelor of Engineering programs are eligible to select this concurrent degree option. Students wishing specific advice should consult the Assistant Dean, Faculty of Engineering and the department for the BA subject of concentration. Courses in the fourth and fifth years are those required to finish the Bachelor of Engineering degree.

E. Individual Programs

In cases where students feel their academic needs are not satisfied under the above requirements, individual programs may be submitted to the Student Affairs Committee of the Faculty of Arts and Social Science and the curriculum committee of the Faculty of Science prior to or during the student’s second academic year. The Dean shall act as advisor for such students.
F. Other Degree and Diploma Programs

1. Bachelor of Music
   For the requirements of this degree, see the entry for the Department of Music.

2. Diploma in Costume Studies
   Study for this credential is entirely within the Department of Theatre. See the
   entry for this department for detailed information.

3. Diploma in Meteorology
   Details of the requirements for this diploma may be found in the entry of the
   Department of Physics and Atmospheric Science.

G. Certificate Programs

1. Certificate in Forensic Psychology
   Note: This certificate is not available in the 2013/2014 academic year.

2. Certificate in Information Technology
   All IT skills will be covered within the regular discipline-based courses of the
   Department of Computer Science.

Data Visualization
- Proficiency in developing online presentations, including object linking
- Ability to produce documents in HTML and/or XML format
- Creation of a personal website
- Ability to produce documents in HTML and/or XML format
- Proficiency in developing online presentations, including object linking

Data Processing
- Basic manipulation of multivariate data and analysis, e.g., GIS
- Manipulation of spatial data sets
- Statistical evaluation of data sets using spreadsheet functions, stats
- Standardized databases, e.g., SYSTAT, S-Plus
- Numeric modeling using spreadsheets, GIS

Data Visualization
- Graphing in 2D and 3D, time series etc.
- Surface modeling
- Fundamentals of animation

General Issues
- Intellectual property in the digital world
- Ethics and privacy
- Security (viruses, firewalls, data encryption)
- Collect and process multivariate data sets, e.g., spatial coordinate data
- Do the above with a spreadsheet
- Construct a relational database using multiple tables and data entry forms
- Examining and analyzing the use of current IT tools. Finding, retrieving, and preparing electronic documents and
- Communicating electronically become second-nature to all science students. In
- All BSc students will be provided with a basic level of competency in the use of
- Certificates in IT provide a discipline-based program to
- Certificates in IT provide a discipline-based program to

3. Certificate in Actuarial and Financial Mathematics
   For the requirements for this certification, see the Mathematics and Statistics
   departmental entry.

   For the requirements for this certification, see the Mathematics and Statistics
   departmental entry.

5. Certificate in Medicinal Chemistry
   For the requirements for this certification, see the Chemistry departmental entry.

6. Certificate in Materials Science
   For the requirements for this certificate, see the Chemistry departmental entry.

7. Certificate in Animal Behaviour
   For the requirements for this certificate, see the Biology departmental entry.

8. Certificate in Geographic Information Science
   For the requirements for this certificate, see the Biology departmental entry.

10. Certificate in Intercultural Communication
    The Certificate in Intercultural Communication is open to students from any
    Faculty at Dalhousie, and welcomes both Canadian and International students. It
    offers the globally-minded student an opportunity to combine academic and
    experiential learning in order to understand and communicate more effectively
    with people from cultures different from their own.

Contact Person:  Dr. Jean-Jacques Defert
Location:  McCain 3108
Contact information:  494-3354  jdefert@dal.ca

1. Academic component (graduate students may receive advance standing for these component)
   a) One full academic credit focusing on the understanding of culture, chosen
      from the list below
   b) Foreign/second language at or beyond the 2000 level or equivalent
      N.B. This requirement is satisfied
       i) by taking foreign/second language courses at Dalhousie at the second-
          year level
       ii) if the student is a native speaker of a language other than English and
           studying at Dal
       iii) by non-credit community-based learning of such languages as Mi'kmaq
           or American Sign Language
   OR
   a) Minimum one semester work or study abroad (or at Dalhousie for
      international students)
   b) Minimum (75 hours) volunteering or working in an intercultural context
      within Canada
   N.B. Students may satisfy this requirement by a blending of work/study abroad
   for less than one full semester and a local volunteer or work placement.
   Students wishing to satisfy this requirement by a volunteer or work placement,
   or a blend of study abroad and work/volunteer placement, need the approval of
   the advisor.

3. Theoretical and practical understanding of issues in intercultural communication (no full credit required):  ASSC 3598.03

Courses satisfying the Academic credit for the Certificate in Intercultural Communication (no credit hours, required):

- ENGL 2090.03: Literature, Migration, and Citizenship
- ENGL 3070.03: 20th Century African-American Novel
- ENGL 3086.03: Post-Colonial Literature
- FREN 3125.03: The Francophone World

- Biology departmental entry.
- Chemistry departmental entry.
- Chemistry departmental entry.
- Chemistry departmental entry.
- Chemistry departmental entry.
- Chemistry departmental entry.
- Chemistry departmental entry.
- Chemistry departmental entry.
I. Introduction

The Faculty of Arts and Social Sciences includes humanities, social sciences, languages, and performing arts. Within the Faculty’s departments and interdisciplinary programs, you can get involved in music and theatre at a professional level. Or you can find out how to do social surveys or archival research. Try out your language-learning abilities in French, German, Spanish, Italian, Russian, Arabic, Mandarin, or maybe Hebrew, Latin, or Greek. Study abroad for a term or a year, and you will develop your skills in cross-cultural interaction. Sharpen your reasoning powers and writing skills by taking literature and philosophy courses that teach advanced levels of reading and analysis.

By exploring various academic disciplines, you'll find that your curiosity about the world and your hopes of a career can be fulfilled in many different ways. You may find that a particular discipline exactly suits your needs. Or you may want to design a course of studies that engages you in a wider variety of departments and programs. You may find that a particular discipline exactly suits your needs. Or you may want to design a course of studies that engages you in a wider variety of departments and programs. You may find that a particular discipline exactly suits your needs. Or you may want to design a course of studies that engages you in a wider variety of departments and programs. You may find that a particular discipline exactly...
II. Departments, Schools and Programs of the Faculty of Arts and Social Sciences

A. Departments and Programs

Arabic
Canadian Studies
Chinese (Mandarin)
Classics
Contemporary Studies
Creative Writing
Early Modern Studies
English
Environment, Sustainability, and Society
European Studies
Film Studies, Fountain School of Performing Arts
French
Gender and Women's Studies
German
History
History of Science and Technology
International Development Studies
Italian Studies
Linguistics (admission suspended)
Music, Fountain School of Performing Arts
Philosophy
Political Science
Religious Studies
Russian Studies
Sociology and Social Anthropology
Spanish and Latin American Studies
Theatre, Fountain School of Performing Arts

B. Interdisciplinary Minors based in the Faculty of Arts and Social Sciences.

Abrahamic Religions
American Studies
Environmental Studies
Film Studies
Health Studies
Latin American Studies
Law and Society
Medieval Studies
Middle East Studies
Popular Culture Studies

C. Minors based in other Faculties open to students registered in the Faculty of Arts and Social Sciences

Business
Cognitive Science (Philosophy)
Community Design
Food Science
Geography
Informatics
Journalism Studies

Arabic

Location: Marion McCain Arts and Social Sciences Building
Department of Classics, Room 1172
6135 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2460
Fax: (902) 494-2467
Email: claswww@dal.ca

Courses in Arabic are administered by the Classics Department, page 152.

A. Minor in Arabic Studies

See Minors in the College of Arts and Science section of this calendar (page 128).

ARBC 1020X/Y.06: Introduction to Arabic.

Introduction to Arabic is a course which focuses on the acquisition of the elementary foundation in Arabic language. It also offers basic information regarding the Arab world: ancient and modern culture and civilization, daily life, religions, literature, etc. The variety of Arabic offered by this course is Modern Standard Arabic, which represents the Arabic language nowadays used in all Arab countries in formal communications. Modern Standard Arabic is used in writing, but it is also a spoken language used in many formal situations.

This course aims to cover: writing with Arabic characters, reading simple original texts in Arabic, the basic components of Arabic grammar and basic daily vocabulary. Some elements of spoken Arabic varieties (dialects) may be offered as well in the second term.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. This course fulfills the BA language requirement.

FORMAT: Lecture
PREREQUISITE: None
EXCLUSION: None

ARBC 2020X/Y.06: Intermediate Arabic.

This course aims at consolidating the grammar and vocabulary acquired at the first level (Introduction to Arabic), and to improve reading and correct use of the syntactical structures in both oral and written communication. The course will also provide the student with the foundation necessary for reading standard forms of Arabic prose (especially newspapers) and for using Modern Standard Arabic in conversation. Written and oral translations from Arabic into English and vice-versa will be frequently proposed to the students in order to attain this purpose.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture
PREREQUISITE: ARBC 1020.06, or permission of the instructor
EXCLUSION: None

ARBC 2100.03: A Cultural Introduction to the Arab World.

This course, offered in English, aims at providing students with the basic tools for approaching the Arab world from a cultural perspective. It offers an overview of the Arabic, Islamic and Christian cultural heritage from the Classical ages through the modern and contemporary periods, with accent on literature, myths, women’s studies, etc.

FORMAT: Lecture/discussion
CROSS-LISTING: RELS 2052.03, HIST 2500.03

ARBC 3030.03: Advanced Arabic I.

This course is a continuation of Intermediate Arabic (ARBC 2020). The course is designed to: (1) consolidate the knowledge acquired in Modern Standard Arabic at the previous level(s); (2) carry reading texts without vocalization, acquiring more complex notions of grammar and vocabulary, translating from Arabic into English, and (3) add new morphological forms (especially verbal and nominal derived forms, passive of verbs, irregular forms, etc.) and more complex

Undergraduate book  Page 143  Wednesday, March 12, 2014  12:03 PM
CROSS-LISTING: CLAS 3100
FORMAT: Lecture
NOTE: This course will be offered in English and is based on English translations of the Arabic language. The required bibliography will be in English as well.
PREREQUISITE: ARBC 3010 or permission of the instructor.

ARBC 3040.03: Arabic Philosophical Texts: al-Ghazali
Also Harun al-Ghazali (1058-1111) is one of the greatest Muslim thinkers of all time. He wrote some of his major works in Arabic. This course is an introduction to his thought, based on a selection of passages from his The Guide of the Perplexed and other works in the original Arabic for advanced students of Arabic.
FORMAT: Lecture/seminar
PREREQUISITE: ARBC 3030, and an introductory level course in Classics or Religious Studies, or permission of the instructor.

ARBC 3050.03: Arabic Philosophical Texts: al-Ghazali
Maimonides, Moses Maimonides (1135-1204) is one of the greatest Jewish thinkers of all time. Though he wrote some of his legal works in Hebrew, his major philosophical works were written in Arabic. This course is an introduction to his thought, based on a selection of passages from his The Guide of the Perplexed and other works in the original Arabic for advanced students of Arabic.
FORMAT: Lecture/seminar
PREREQUISITE: ARBC 3030, and an introductory level course in Classics or Religious Studies, or permission of the instructor.

ARBC 3100.03: Arabic Pre-Islamic Poetry
This course offers an overview of the best pieces of the earliest poetry composed in Arabic language, in the Arab Peninsula, within a period which preceded the rise of Islam. It focuses on the so-called "Spilled Poems" (Al-Mu’allaqat), considered as the masterpieces of seven (or ten, according to different sources) Arab poets such as Imara’ al-Qasim, Tariq al-Ashrah, Zaydi, etc.
NOTE: This course will be offered in English and is based on English translations of the Arabic language. The required bibliography will be in English as well.
FORMAT: Lecture/seminar
CROSS-LISTING: CLAS 3100
RESTRICTION: Students must be beyond the first year of study.

Arts and Social Sciences

ASSC 1000.03: Introduction to Computing for Non-Majors
This course is designed for international students. It aims to discuss the basic elements of culture and society relative to the challenges of academic integration in a Canadian university. Students will reflect on various cultural contexts through readings and activities organized around two salient issues confronting international students: a) the internationalization of Canadian education; and b) the problems and prospects of immigrating to Canada. It will highlight cultural forms such as art, music & dance, literature, sports & film; and succinct discussions of major social institutions like the family, education, religion and state. This aims to enable students to examine critically the similarities and differences across societies and cultures where they face the challenges of social and academic adjustment to a successful learning experience.
FORMAT: Lecture/discussion & tutorial
EXCLUSION: COMP 1000.03; MGMT 1601.03, LIBS 1601.03, COMM 1501.03

ASSC 1040.03: Culture, Society & International Students
This course is designed for international students. It aims to discuss the basic elements of culture and society relative to the challenges of academic integration in a Canadian university. Students will reflect on various cultural contexts through readings and activities organized around two salient issues confronting international students: a) the internationalization of Canadian education; and b) the problems and prospects of immigrating to Canada. It will highlight cultural forms such as art, music & dance, literature, sports & film; and succinct discussions of major social institutions like the family, education, religion and state. This aims to enable students to examine critically the similarities and differences across societies and cultures where they face the challenges of social and academic adjustment to a successful learning experience.
FORMAT: Lecture/discussion & tutorial
EXCLUSION: COMP 1000.03; MGMT 1601.03, LIBS 1601.03, COMM 1501.03

ASSC 1050.03: Foundations for Learning
This course introduces participants to university culture and helps them to enhance academic performance. Course experiences build a practical understanding of the learning process at the university level, enabling students to develop strategies to be more effective learners. Topics include performance expectations, conventions of academic critical reading and writing, research methods, discipline-specific learning strategies, knowledge management, learning communities, self-evaluation methods, and effective use of university resources.
FORMAT: Lecture/seminar
PREREQUISITE: Faculty of Arts and Social Sciences students with 10 credit hours or less; and permission of Assistant Dean (Student Matters).

ASSC 1100.03: Interdisciplinary Issues in Career Development
This course examines theoretical and practical issues in career development. Participating in the portfolio process, students will apply theoretical understandings to experientially based activities. Through assessing personal environmental factors that impact decision-making, students will create a proposed context for viewing their careers. Class content will include principles, theories and practices relating to: the meaning and nature of work, self and identity, career choice and decision-making, issues and strategies in self-assessment, occupational research and the future of work. Special issues will also be considered, such as gender, culture, job loss and the management of a career portfolio. This is a half credit course that is taken as part of a regular degree program.
NOTE: A related course in occupations (OCCU 2000.03) is offered by the School of Occupational Therapy. See Occupational Therapy section and see Section 5 of the Degree Requirements section of this Calendar regarding Arts and Science electives.
FORMAT: Lecture/discussion/tutorial
EXCLUSION: MGMT 1600.03

Students of Arabic and English may continue the translation into Arabic and composition skills. This course offers an overview of the best pieces of the earliest poetry composed in Arabic, with lectures and discussions. A related course in occupations (OCCU 2000.03) is offered by the School of Occupational Therapy. See Occupational Therapy section and see Section 5 of the Degree Requirements section of this Calendar regarding Arts and Science electives.
ASSC 1200.03: First-Year Seminar: Arts & Social Sciences.

This course is a 3-credit Humanities elective for first-year students, offering a chance to explore a particular theme in a small-group format. It is ideal for anyone interested in taking this course, please contact the instructor.

Prerequisite: At least 2 courses at the 2000 level in an arts or social science.

Format: Seminar

ASSC 3100X.Y.06: Communication and Mentoring.

This course examines the fundamental principles of human communication, leadership, mentoring, and group dynamics. Through the application of theory to practice, students will develop communication, leadership, and mentoring skills.

Prerequisite: At least 2 courses at the 2000 level in an arts or social science.

Format: Lecture or seminar

ASSC 3112.03: Writing Theory.

This course provides a range of approaches to writing. Students read widely in rhetoric and composition, participate in ongoing conversations about writing, and heighten their understanding of the composition process.

Prerequisite: At least 2 courses at the 2000 level in an arts or social science.

Format: Lecture/discussion

ASSC 3113.03: Writing Practice.

This course puts writing theory into practice. As part of their class work, students gain valuable experience working as writing tutors and/or assistants editors for an academic journal. The course is ideal for anyone interested in taking this course.

Prerequisite: At least 2 courses at the 2000 level in an arts or social science.

Format: Lecture/discussion

ASSC 3150.03: Intercultural Communication.

In this highly interactive class, students will study and apply key concepts of intercultural communication through the goal of developing an empathic understanding of other cultures and an ability to communicate effectively across cultures. Topics include: Awareness of one’s own culture, verbal and nonverbal elements of communication, hierarchy (“power distance”), collectivism vs individualism, direct/indirect communication styles, conflict management styles.

Prerequisite: At least 2 courses at the 2000 level in an arts or social science.

Format: Lecture, discussion

ASSC 3311.03: Interdisciplinary Special Topics I.

This is an interdisciplinary course that offers a subject in the arts or social science which does not emerge from a particular discipline. The topic will be announced in the year prior to the course being offered.

Prerequisite: At least 2 courses at the 2000 level in an arts or social science.

Format: Lecture or seminar

ASSC 3312.03: Interdisciplinary Special Topics II.

This is an interdisciplinary course that offers a subject in the arts or social science which does not emerge from a particular discipline. The topic will be announced in the year prior to the course being offered.

Prerequisite: At least 2 courses at the 2000 level in an arts or social science.

Format: Seminar
II. Requirements

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section of this calendar (page 129).

BA (15 credit) Minor in Canadian Studies

See requirements for minor in the College of Arts and Science section of this calendar (page 129).

Minor in Canadian Studies

See Minor in the College of Arts and Science section of this calendar (page 129).

BA or BSc (20 credit) Double Major in Canadian Studies

1800 Level

One full credit course in French (a course in an aboriginal language may be substituted, as a transfer credit).

2000 - 4000 level

A minimum of five and a maximum of eight credits of Canadian Studies courses, for a total of a minimum of 10 and a maximum of 14 credits in the two major subjects.

Required:

• CANA 3000.03: Interdisciplinary Approaches to Canadian Themes
• CANA 4000.03: Canadian Studies Senior Seminar
• Further Canadian Studies electives as required. CANA 4001.03: Research Topics in Canadian Studies may count toward this requirement.

BA or BSc (20 credit) Combined Honours in Canadian Studies

1800 Level

One full credit course in French (a course in an aboriginal language may be substituted, as a transfer credit).

2000 - 4000 level

A minimum of five and a maximum of eight credits of Canadian Studies courses, with a minimum of 11 and a maximum of 14 credits beyond the 1000-level in the two honours subjects.

Required:

• CANA 3000.03: Interdisciplinary Approaches to Canadian Themes
• CANA 4000.03: Canadian Studies Senior Seminar
• CANA 4001.03: Research Topics in Canadian Studies
• Further Canadian Studies electives as required.

III. Course Descriptions

NOTE: Not all courses are offered every year. Please consult the current timetable to determine this year’s offerings.

CANA 1100X/Y.06: Halifax and the World.

Walking across the Dalhousie campus while drinking a coffee and talking on your phone connects you to people around the world and to the history and literature of Halifax, Canada and the World in ways that you probably never imagined. Knowing ourselves and understanding our place in the world as Canadians remains an urgent task for students and scholars alike.

Canadian Studies at Dalhousie University has always been based upon a very strong tradition of research and teaching in a wide range of Faculty of Arts and Social Science and Faculty of Science departments and in other associated faculties and professional schools such as the Health Professions, Law, and the King’s School of Journalism. The Dalhousie Canadian Studies Program, with its various options, allows students to deepen their understanding of Canada in an exciting and coherent interdisciplinary context. As a second field of study leading to a Minor, a Double Major or a Combined Honours BA or BSc, it provides the opportunity to enrich and enhance a student’s work on Canadian topics beyond his or her primary departmental home. To this end, Canadian Studies provides both a group of core courses that study Canada from an interdisciplinary perspective, and a long list of electives cross-listed in other departments throughout the University.

Former students of Canadian Studies have found that this interdisciplinary study has been of benefit to them in a wide range of activities and careers including journalism, public service, teaching at all levels, and graduate and professional studies.

The Canadian Studies Program

I. Introduction

Why Canadian Studies at Dalhousie? In this era of globalized exchange, and a growing sense of international citizenship and responsibilities, Canadian Studies programs are enjoying something of a renaissance. Knowing ourselves and understanding our place in the world as Canadians remains an urgent task for students and scholars alike.

Canadian Studies at Dalhousie University has always been based upon a very strong tradition of research and teaching in a wide range of Faculty of Arts and Social Science and Faculty of Science departments and in other associated faculties and professional schools such as the Health Professions, Law, and the King’s School of Journalism. The Dalhousie Canadian Studies Program, with its various options, allows students to deepen their understanding of Canada in an exciting and coherent interdisciplinary context. As a second field of study leading to a Minor, a Double Major or a Combined Honours BA or BSc, it provides the opportunity to enrich and enhance a student’s work on Canadian topics beyond his or her primary departmental home. To this end, Canadian Studies provides both a group of core courses that study Canada from an interdisciplinary perspective, and a long list of electives cross-listed in other departments throughout the University.

Former students of Canadian Studies have found that this interdisciplinary study has been of benefit to them in a wide range of activities and careers including journalism, public service, teaching at all levels, and graduate and professional studies.

II. Requirements

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section of this calendar (page 129).

BA (15 credit) Minor in Canadian Studies

See requirements for minor in the College of Arts and Science section of this calendar (page 129).

Minor in Canadian Studies

See Minor in the College of Arts and Science section of this calendar (page 129).

BA or BSc (20 credit) Double Major in Canadian Studies

1800 Level

One full credit course in French (a course in an aboriginal language may be substituted, as a transfer credit).

2000 - 4000 level

A minimum of five and a maximum of eight credits of Canadian Studies courses, for a total of a minimum of 10 and a maximum of 14 credits in the two major subjects.

Required:

• CANA 3000.03: Interdisciplinary Approaches to Canadian Themes
• CANA 4000.03: Canadian Studies Senior Seminar
• Further Canadian Studies electives as required. CANA 4001.03: Research Topics in Canadian Studies may count toward this requirement.

BA or BSc (20 credit) Combined Honours in Canadian Studies

1800 Level

One full credit course in French (a course in an aboriginal language may be substituted, as a transfer credit).

2000 - 4000 level

A minimum of five and a maximum of eight credits of Canadian Studies courses, with a minimum of 11 and a maximum of 14 credits beyond the 1000-level in the two honours subjects.

Required:

• CANA 3000.03: Interdisciplinary Approaches to Canadian Themes
• CANA 4000.03: Canadian Studies Senior Seminar
• CANA 4001.03: Research Topics in Canadian Studies
• Further Canadian Studies electives as required.

III. Course Descriptions

NOTE: Not all courses are offered every year. Please consult the current timetable to determine this year’s offerings.

CANA 1100X/Y.06: Halifax and the World.

Walking across the Dalhousie campus while drinking a coffee and talking on your phone connects you to people around the world and to the history and literature of Halifax, Canada and the World in ways that you probably never imagined. Knowing ourselves and understanding our place in the world as Canadians remains an urgent task for students and scholars alike.

Canadian Studies at Dalhousie University has always been based upon a very strong tradition of research and teaching in a wide range of Faculty of Arts and Social Science and Faculty of Science departments and in other associated faculties and professional schools such as the Health Professions, Law, and the King’s School of Journalism. The Dalhousie Canadian Studies Program, with its various options, allows students to deepen their understanding of Canada in an exciting and coherent interdisciplinary context. As a second field of study leading to a Minor, a Double Major or a Combined Honours BA or BSc, it provides the opportunity to enrich and enhance a student’s work on Canadian topics beyond his or her primary departmental home. To this end, Canadian Studies provides both a group of core courses that study Canada from an interdisciplinary perspective, and a long list of electives cross-listed in other departments throughout the University.

Former students of Canadian Studies have found that this interdisciplinary study has been of benefit to them in a wide range of activities and careers including journalism, public service, teaching at all levels, and graduate and professional studies.

II. Requirements

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section of this calendar (page 129).

BA (15 credit) Minor in Canadian Studies

See requirements for minor in the College of Arts and Science section of this calendar (page 129).

Minor in Canadian Studies

See Minor in the College of Arts and Science section of this calendar (page 129).

BA or BSc (20 credit) Double Major in Canadian Studies

1800 Level

One full credit course in French (a course in an aboriginal language may be substituted, as a transfer credit).

2000 - 4000 level

A minimum of five and a maximum of eight credits of Canadian Studies courses, for a total of a minimum of 10 and a maximum of 14 credits in the two major subjects.

Required:

• CANA 3000.03: Interdisciplinary Approaches to Canadian Themes
• CANA 4000.03: Canadian Studies Senior Seminar
• Further Canadian Studies electives as required. CANA 4001.03: Research Topics in Canadian Studies may count toward this requirement.

BA or BSc (20 credit) Combined Honours in Canadian Studies

1800 Level

One full credit course in French (a course in an aboriginal language may be substituted, as a transfer credit).

2000 - 4000 level

A minimum of five and a maximum of eight credits of Canadian Studies courses, with a minimum of 11 and a maximum of 14 credits beyond the 1000-level in the two honours subjects.

Required:

• CANA 3000.03: Interdisciplinary Approaches to Canadian Themes
• CANA 4000.03: Canadian Studies Senior Seminar
• CANA 4001.03: Research Topics in Canadian Studies
• Further Canadian Studies electives as required.

III. Course Descriptions

NOTE: Not all courses are offered every year. Please consult the current timetable to determine this year’s offerings.

CANA 1100X/Y.06: Halifax and the World.

Walking across the Dalhousie campus while drinking a coffee and talking on your phone connects you to people around the world and to the history and literature of Halifax, Canada and the World in ways that you probably never imagined. Knowing ourselves and understanding our place in the world as Canadians remains an urgent task for students and scholars alike.

Canadian Studies at Dalhousie University has always been based upon a very strong tradition of research and teaching in a wide range of Faculty of Arts and Social Science and Faculty of Science departments and in other associated faculties and professional schools such as the Health Professions, Law, and the King’s School of Journalism. The Dalhousie Canadian Studies Program, with its various options, allows students to deepen their understanding of Canada in an exciting and coherent interdisciplinary context. As a second field of study leading to a Minor, a Double Major or a Combined Honours BA or BSc, it provides the opportunity to enrich and enhance a student’s work on Canadian topics beyond his or her primary departmental home. To this end, Canadian Studies provides both a group of core courses that study Canada from an interdisciplinary perspective, and a long list of electives cross-listed in other departments throughout the University.

Former students of Canadian Studies have found that this interdisciplinary study has been of benefit to them in a wide range of activities and careers including journalism, public service, teaching at all levels, and graduate and professional studies.
Halifax you re-trace the footsteps of key characters in the history and literature of the city and the world. This half-credit seminar course explores these and other similar connections as well as the ethical questions that they raise about our daily lives. The course will engage you in both hands-on action and academic research to learn about and confront the many connections between our daily lives, our city and the rest of the world.

NOTE: To see the course outline, meet the professors and learn more about the course, see: www.dal.ca/idc

FORMAT: Lecture/seminar/site visits

CANA 1101.03: Halifax in the World.

Walking across the Dalhousie campus while drinking a coffee and talking on your phone connects you to people around the world and to the history and literature of Halifax, Canada and the World in ways that you probably never imagined: your coffee connects you to the peasant farmers in Ethiopia or Guatemala who grew the beans. Your phone call connects you to child soldiers in Africa who fight over coltan – one of the key minerals in cell phones. Your footsteps across campus place you on what was once Mi'kmaq territory and when you walk through Halifax you retrace the footsteps of key characters in the history and literature of the city and the world.

NOTE: To see the course outline, meet the professors and learn more about the course, see: www.dal.ca/idc

FORMAT: Lecture/seminar/site visits

CANA 1100.06: The Idea of Canada: An Introduction.

This course explores an interdisciplinary approach to focused themes in Canadian history and society. Beginning with the premise that a nation is fundamentally a “narration,” it asks: What sorts of stories do Canadians tell about themselves? How is the nation constructed on important texts – novels, poems, films, songs, and political documents – that relate narrative events in Canadian history and society to new, more inclusive, directions for the future? Themes may include, but are not restricted to: First Nation’s history and culture; multiculturalism; wilderness; the, worth, national identity; and foreign policy

NOTE: Credit can only be given for this course if X. Y are completed in consecutive terms and partial credit cannot be given for a single term. 

FORMAT: Lectures/discussion

CANA 3000.03: Interdisciplinary Approaches to Canadian Themes.

This multidisciplinary seminar provides students with the opportunity to consider the structure and content of Canadian society from a variety of academic viewpoints, including the philosophical, historical, political, sociological, geographical, legal and literary. Professors discuss the study of Canada as seen from their different disciplinary perspectives, while the course co-ordinator leads a weekly tutorial.

FORMAT: Seminar

CANA 4000.03: Seminar in Canadian Studies.

The course will explore in depth a single Canadian issue, topic or theme that crosses disciplinary borders. Along with the instructor, cross-appointed faculty from different departments will share their views on the subject. Topics might include: Canada as a maritime nation, or Canadian films. 

NOTE: CANA 4000.03 is also open, as an elective course, to Faculty of Arts and Social Sciences students with an interest in Canadian Studies who may not complete the Canadian-content requirements for the Concentration, minor or joint degree.

FORMAT: Seminar/tutorial

CANA 4001.03: Research Topics in Canadian Studies.

This course will provide students with an opportunity to develop, in close consultation with a faculty member, a topic in Canadian Studies usually growing out of the work done in the seminar CANA 4000.03. Research will culminate in a project that will require two or more meetings with the chosen faculty member and progress meetings of the whole group. It is mandatory for those completing a Combined Honours in Canadian Studies and is highly recommended for those seeking the Emphasis or Double Major in Canadian Studies.

FORMAT: Seminar/tutorial

PREREQUISITE: CANA 4000.03 or permission of the instructor

IV. Canadian Studies Electives

NOTE: Some courses may not be offered every year. Please consult the current timetable to determine if these courses are offered. More detailed information can be obtained from the Canadian Studies office.

In addition to the courses listed below, appropriate courses in other departments may be taken to Canadian Studies credits, with the permission of the instructor concerned and the coordinator.

CANA 1100X/Y.06: Halifax and the World.

This half-credit summer course explores these and other similar connections as well as the ethical questions that they raise about our daily lives.

NOTE: To see the course outline, meet the professors and learn more about the course, see: www.dal.ca/idc

FORMAT: Lecture

CANA 1100X/Y.06: Halifax and the World.

This half-credit summer course explores these and other similar connections as well as the ethical questions that they raise about our daily lives.

NOTE: To see the course outline, meet the professors and learn more about the course, see: www.dal.ca/idc

FORMAT: Lecture

CANA 1100X/Y.06: Halifax and the World.

This half-credit summer course explores these and other similar connections as well as the ethical questions that they raise about our daily lives.

NOTE: To see the course outline, meet the professors and learn more about the course, see: www.dal.ca/idc

FORMAT: Lecture
CANA 2110X/Y.06: Exploring Canadian Society.
This is a course about the nature of Canadian society and how it came to be what it is. It explores the themes of the major agreements and conflicts among Canadians which have been central to our social and economic development since we became a nation. The theme of lectures will include: dilemmas in Canada's relationship with the United States; the future for the English-French relations; the role of the media in politics and social issues; the role of the media in social and economic developments; understanding the changing political power of Western Canada; and the role of the media in social and economic development. The students who have completed this course will gain a better understanding of the social and economic development of Canada and will be able to apply their knowledge to their future careers.

CANA 2111:03: Is there an Atlantic Canada?
This course will examine the historical and contemporary social issues related to the Maritime and Atlantic Provinces. The course will critically question what is meant by “Atlantic Canada” and look at its social, demographic, economic, and cultural trends in relation to the rest of the country. Attention will be given to the role of Acadia, Mi’kmaw, and African Nova Scotians as well as dominant power holders in the construction of Atlantic Canada.

CANA 2115.03: African Canadian Society, Culture, and Resistance.
This course examines African Canadian society and culture from the historical to contemporary period. The course will include a critical view of African Canadians’ life in Canada, and will include readings about the diverse Black communities across Canada. There has been a presence of African peoples in Canada for over 400 years; however, the rich histories of African-Canadian people have often been ignored. This course examines African Canadian society and culture from the historical to contemporary period. Topics will include historical analyses, slavery, patterns of immigration and settlement, family, continental African and diasporic connections, identity, arts and culture, education, employment, justice and the law, the media, diaspora debates, Black struggles and resistance, and African Canadian achievements. The course will be taught from a critical race and gender perspective, and will include readings about the diverse Black communities across Canada. This course will provide an understanding of the challenges faced by African Canadians and will help students understand why sources of unity and disunity have been central to social life in Canada.

CANA 2207.03: Canada’s Origins to 1763.
This course explores Canada’s origins to 1763. It traces the history of First Nations peoples before and after the arrival of Europeans. It addresses themes such as the role of the physical environment; the fur, fish, and timber trades; and the imperial struggle for dominance in North America. While the lectures will outline the major developments in the seventeenth and eighteenth centuries, the tutorials will focus on specific issues, such as the role of treaties in Canadian history. The course climaxes with the Conquest of Quebec and the end of the Seven Years War.

CANA 2208.03: Patriots, Rebels, Refugees: Canada’s roots in the Age of Revolution, 1763 to 1860.
As empires continued their international contest and Britain fought to maintain colonies within North America, old and new inhabitants of what would become Canada also wrestled with questions concerning what would exercise power within their communities and governing bodies. In this course we learn about the revolutionary wars, and at times, conflicting answers to old questions: what did it mean to be a patriot? who and what were they willing to fight for? who and what were they prepared to resist? Immigrants, exiles and the refugees of European and North American wars shaped new homelands, even as the First Nations peoples became refugees within their own lands. In this course we explore the related questions of loyalty and conscience through the diaries and letters of men and women defining their place in a new order.

CANA 2209.03: Making a Nation: Canada, 1860-1929.
This is the story of how British North America was transformed into a distinct nation-state in the twentieth century. We’ll see how a young Canada grappled with geographical, political, and social challenges: acquiring enormous territories amid growing provincial differences, maintaining loyalty to Empire while developing a New World identity; reconciling new and diverse cultural communities, and balancing for war.

CANA 2210.03: Many Canadas: Canada, 1930 to the present.
This course explores the making of Canada, including the shift from imperial to continental and national politics, the rise and transformation of third-party political movements, and the emergence of new ideas about the rights and responsibilities of the liberal individual subject.

PREREQUISITE: FREN 1045X/Y.06 or 1050X/Y.06, or 2000-level Placement Test result, or instructor’s permission

CROSS-LISTING: FREN 2021.03

FORMA T: Lecture/tutorial

CROSS-LISTING: FREN 2021.03

CANA 2203.03: Approches du texte littéraire/Approaches to Literary Texts.
An introduction to the critical reading of a selection of literary texts (various genres and periods) with an emphasis on Quebec literature. The critical analysis of short texts will lead to discussions of the broader nature of recurring images and myths as well as central themes. Strongly recommended for French majors and Honours students.

PREREQUISITE: FREN 1045X/Y.06 or FREN 1050X/Y.06, or 2000-level Placement Test result

CROSS-LISTING: FREN 2203.03

CANA 2207.03: Canada’s Origins to 1763.
This course explores Canada’s origins to 1763. It traces the history of First Nations peoples before and after the arrival of Europeans. It addresses themes such as the role of the physical environment; the fur, fish, and timber trades; and the imperial struggle for dominance in North America. While the lectures will outline the major developments in the seventeenth and eighteenth centuries, the tutorials will focus on specific issues, such as the role of treaties in Canadian history. The course climaxes with the Conquest of Quebec and the end of the Seven Years War.

PREREQUISITE: FREN 1045X/Y.06 or 1050X/Y.06, or 2000-level Placement Test result, or instructor’s permission

CROSS-LISTING: FREN 2021.03

FORMA T: Lecture/tutorial

CROSS-LISTING: FREN 2021.03

CANA 2208.03: Patriots, Rebels, Refugees: Canada’s roots in the Age of Revolution, 1763 to 1860.
As empires continued their international contest and Britain fought to maintain colonies within North America, old and new inhabitants of what would become Canada also wrestled with questions concerning what would exercise power within their communities and governing bodies. In this course we learn about the revolutionary wars, and at times, conflicting answers to old questions: what did it mean to be a patriot? who and what were they willing to fight for? who and what were they prepared to resist? Immigrants, exiles and the refugees of European and North American wars shaped new homelands, even as the First Nations peoples became refugees within their own lands. In this course we explore the related questions of loyalty and conscience through the diaries and letters of men and women defining their place in a new order.

PREREQUISITE: FREN 1045X/Y.06 or 1050X/Y.06, or 2000-level Placement Test result, or instructor’s permission

CROSS-LISTING: FREN 2021.03

FORMA T: Lecture/tutorial

CROSS-LISTING: FREN 2021.03
GROUP 1: Experiential Learning

CANA 3009.03: Seminar, Discussion and Applied Work Experience with an Organization

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

CANA 3106.03: Seminar in Canadian Studies

This multidisciplinary seminar provides students with the opportunity to consider the structure and content of Canadian society form a variety of academic viewpoints, including the philosophical, historical, political, sociological, geographical, and legal and literary. Professors discuss the study of Canada seen from their different disciplinary perspectives, while the course coordinator leads a weekly tutorial.

FORMAT: Seminar

PREREQUISITE: CANA 2000 or other course approved with Instructors/Coordinator approval

CANA 3109.03: Seminar in Canadian Studies

This course explores the stories behind Canada’s distinct regional landscapes. It begins with the idea that each province has a certain identity within the national framework—a “region” landscape—and this identity can be traced to a particular historical relationship with a particular place or environment. By examining the origins of these different landscapes, we can better understand how different geographies shaped both local and national histories, and also the regional tensions and differences with national borders. At the same time, we can appreciate how nature has been understood, used and transformed since the fifteenth century.

FORMAT: Lecture/discussion

CROSS-LISTING: GEOG 3210.03, HIST 3210.03

CANA 3165.03: Issues in the Study of Indigenous Peoples of North America

This seminar is concerned with the historical background of the Naive-European situation in North America and with issues arising from this background. Students will research issues which are significant to themselves and are important to Native groups. Topics covered may vary from year to year, but will normally include a combination of historical issues such as culture change and contemporary issues such as land claims, self-determination and government policy, and social conditions of Natives.

FORMAT: Lecture

PREREQUISITE: One of CANA 1000X/Y.06, 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

CROSS-LISTING: CANA 3185.03

CANA 3185.03: Issues in the Study of Indigenous Peoples of North America

This seminar is concerned with the historical background of the Naive-European situation in North America and with issues arising from this background. Students will research issues which are significant to themselves and are important to Native groups. Topics covered may vary from year to year, but will normally include a combination of historical issues such as culture change and contemporary issues such as land claims, self-determination and government policy, and social conditions of Natives.

FORMAT: Lecture

PREREQUISITE: One of CANA 1000X/Y.06, 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

CROSS-LISTING: CANA 3185.03

CANA 3220.03: Coastal Communities in the North Atlantic

Coastal communities as a social and ecological type are examined as populations, and social structures (territorial, economic, occupational, political) as they have developed in response to particular ecological and social circumstances. Various perspectives which have been applied to coastal communities are examined with regard to the contribution they may make to understanding the dynamics of these communities. The focus is on North Atlantic communities.

FORMAT: Lecture

PREREQUISITE: One of CANA 1000X/Y.06, 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

CROSS-LISTING: ENVI 5180.03, GEOG 3220.03, CROSS-LISTING: CANA 3185.03

CANA 3223.03: The Caring Society? - Welfare in Canada since 1900

A new sociology of change over the twentieth century in the ways Canadians have dealt with people’s needs, their own or others’, whether for income, housing, personal care, or other matters of survival and well-being. Both private and government forms of welfare provision will be studied, with the overall purpose of understanding why Canada came to have the kind of welfare state it does. Among the topics that may be covered are: changing views on the origins and prevention of dependency; definitions of need; religious and ethnic variations in welfare practices; connections between welfare and women’s lives; charitable fund-raising; promoters and opponents of government social programs; financing the welfare state; gender, race, constitutional, and class issues in welfare.

FORMAT: Lecture/discussion or seminar

CROSS-LISTING: HIST 3220.03, CROSS-LISTING: HIST 3220.03

CANA 3231.03: Modern Canadian Literature

The historical period covered in this course extends from the end of World War I through the decade following World War II, a period during which Canada witnessed the formation of modern literature in English. Varied aesthetic
response to ideas of the modern, the processes and technologies of modernization, and the conditions of social, cultural, economic, and political modernity will be addressed.

PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

CROSS-LISTING: HIST 3249.03
EXCLUSION: HIST 2240.03

CANA 3270.03: Contemporary Canadian Literature.
In this course, a variety of late-twentieth-century and recent Canadian fiction and poetry texts will be studied from such perspectives as the following: postcolonial, postmodern, multicultural. The politics of cultural expressions will be emphasized, as well as the relationship between ethics and aesthetic approaches to literature.

PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

CROSS-LISTING: ENGL 3270.03
EXCLUSION: ENGL 3233.03

CANA 3333.03: News Media and the Courts in Canada.
This course is an introduction to the justice system and the specific laws that govern how journalism do their jobs. The goal is to give students and working journalists an understanding of court structure, legal principles, and criminal and civil procedure. Based on publication, contempt of court, libel law, media access to the courts, confidentiality of sources and other media-law issues will be examined.

The format combines lectures with forum discussions featuring lawyers, prosecutors, judges and other players in the justice system.

PREREQUISITE: JOUR 1001.06 or CANA 2000.06 or permission of the instructor

CROSS-LISTING: JOUR 3333.03

CANA 3568.03: Canada and the World.
This course examines post-World War II Canadian Foreign Policy in two parts: (1) an analysis of "landmark" policy issues; and (2) an investigation of the general factors that help to "explain" the form and content of Canadian foreign policy, with particular reference to the institutions and processes through which policy decisions are made. Issues discussed are likely to include: the "inventories" of peacekeeping; the Mulroney government's involvement in the campaign to end apartheid in South Africa; the negotiation of the North American Free Trade; the politics of immigration and dispersal; and the place of the Arctic in Canada and international relations.

FORMAT: Seminar
PREREQUISITE: Class in international politics, Canadian politics, or Canadian history in the 20th century, or with the permission of the instructor

CROSS-LISTING: POLI 3568.03

CANA 3900.03: CANA 3901.03: La littérature canadienne française/French-Canadian Literature.
In-depth study of a few major works of French-Canadian literature with emphasis on the period from 1945 to the present day. Approved with Canadian Studies.

FORMAT: Lecture/discussion
PREREQUISITE: FREN 2201.03/2202.03

CROSS-LISTING: CANA FREN 3901.03

CANA 3910.03: Études acadiennes/Acadian Studies.
Critical investigation of the historical, socio-cultural, linguistic and literary significance of past and present Acadian writing. Approved with Canadian Studies.

FORMAT: Lecture/discussion
PREREQUISITE: FREN 2201.03/2202.03

CROSS-LISTING: FREN 3910.03

CANA 4300.03: Canadian Healthcare Delivery System.
The course is designed to provide an overview of the healthcare system in Canada, and more specifically in Nova Scotia, where the health reform process will be addressed. Issues specifically at supers, middle management, and administrators and the existing trends in healthcare from a national and provincial perspective will be reviewed. The goal of this course is to provide the student with a snapshot view of the existing healthcare system, its past development, and future direction.

CROSS-LISTING: HESA 4300.03

CANA 4500.03: Canadian Theatre to 1968: Performing the Nation.
Early Canadian theatre offers a fascinating example of a colonized nation's struggle to find its own dynamic voice in the face of powerful outside influences. This seminar course will explore the development of theatre in Canada from its roots in First Nations ritual and performance, to its encounters with British and European models and its eventual search for an independent identity via Little Theatre movement, the Workers' Theatre movement and the Dominion Drama Festival. The course will close with a consideration of the influential Musée Commission and the birth of the Stratford Festival, Canada's first 'world class' theatre. Over the course of the term, special attention will be paid to the development of diverse dramatic traditions in French and English Canada. Drama by representative playwrights will be studied alongside primary sources in Canadian theatre history to give students an integrated perspective on the complex artistic and political debates that helped to determine the character of performance in Canada.

FORMAT: Seminar/discussion
PREREQUISITE: Permission of the instructor

CROSS-LISTING: CANA 4500.03, ENGL 4500.03

CANA 4501.03: Canadian Theatre Since 1968: Interrogating Identities.
This seminar course will examine the ongoing emergence of uniquely Canadian forms of theatre in the years since the Musée Commission asserted the need to foster Canada's native talent. Topics to be considered will include: the controversial role of government subsidy and policy-making in Canadian culture; the differing models offered by the Stratford and Shaw Festivals, by the major regional theatres, and by 'alternate' and independent companies; the contrast between First Nations, English and French-Canadian traditions; and the rise of the current 'Fringe' phenomenon. Drama by representative playwrights will be considered alongside post-colonial theory and primary sources in Canadian theatre history to help students consider what a genuinely 'Canadian' theatre might look like. Above all, the course offers an opportunity to consider the complex relationship between theatre and national identity: who are 'we,' and how might our theatre express or even shape 'us'?

FORMAT: Seminar/discussion
PREREQUISITE: Permission of the instructor

CROSS-LISTING: ENGL 4501.03, THEA 4501.03
Chinese (Mandarin)

Location: Marion McCain Arts and Social Sciences Building
6125 University Avenue, Room 3010
PO Box 15000
Halifax, NS B3H 4R2
Telephone: 902-494-3473
Fax: 902-494-7581
Dean
Summerby-Murray, R., ATCL Dip (Trinity College, London), BA, MA (Cantabery), PhD (Osnrome)
Coordinator
Liu, Shao-Pi (94-31917), PhD (UTs)

I. Introduction

A minor in Chinese Studies is an excellent interdisciplinary complement to a course of studies at Dalhousie or King's in many area of arts, social sciences, sciences, or other programs. Students will attain a solid foundation for further academic, professional, and personal explorations of this fascinating country, its history, its culture, and its complex relationship to other parts of Asia as well as its role in the international community.

II. Minor Degree Program Requirements

See Minors in the Course of Arts and Science section of this calendar (page 128).

III. Course Descriptions

CHIN 1030X/Y.06: Introduction to Chinese (Mandarin).

This course aims to provide basic competence in understanding and speaking Mandarin and reading Chinese characters. It is for students who have had no exposure to Mandarin or Cantonese. This course fulfills the B.A. language requirement.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture and lab

EXCLUSION: ASMC/HK 2053X/Y; native speakers of Chinese (any dialect)

CHIN 2030X/Y.06: Intermediate Chinese (Mandarin).

For students with some background in Mandarin Chinese, this course is a continuation of CHIN 1030.06 Introduction to Mandarin. All four language skills—listening and speaking, reading and writing—will be further developed; as well, a broader range of Chinese cultural elements will be introduced.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

EXCLUSION: Native speakers of Chinese (any dialect)

CHIN 2050.03: Chinese Culture.

This course explores the historical and literary backgrounds to modern Chinese culture by looking into different cultural characteristics of Chinese culture, customs, myths, fables, social roles, folk, fashion, dance, language and religion. In order to understand what constitutes Chinese and its transformation, the course also discusses the historical contexts of Chinese diaspora (such as Chinese communities in North America, Taiwan, and Southeast Asia) and Western conceptualizations of Chinese culture in relation to other aspects of social life, i.e. economy and politics. No previous background in Chinese language or culture is required.

FORMAT: Lecture/discussion

PREREQUISITE: None

CHIN 2052.03: East Meets West in Popular Culture.

This course is devoted to examining interactions between “West” and “East” through the study of cross-cultural influences in popular literatures, cinema, music, and comics in Europe, North America, and East Asia.

CROSS-LISTING: CTMP 2052.03

CHIN 2060.03: Chinese and Japanese Religions.

An introduction to the cultural, religious, and philosophical traditions of China and Japan. Topics to be covered include: Classical Confucianism, Neo-Confucianism, Philosophical and Buddhist Taoism, Shinto, Chinese and Japanese Buddhism. The course will also examine the interaction, comparison, and overlap between these traditions.

FORMAT: Lecture/seminar

CROSS-LISTING: RELS 2060.03

CHIN 2070.03: Buddhism.

This course introduces the student to the Buddhist religious tradition, beginning with its origins and early developments in India and followed by a treatment of key themes of world Buddhism such as meditation, devotion, monasticism, and ritual. The course thus exposes students to both Buddhism’s early Indian doctrinal and institutional dimensions, and to aspects of Buddhism as practiced subsequently in China, Japan, and Tibet.

FORMAT: Lecture/seminar

CROSS-LISTING: RELS 2070.03

CHIN 2080.03: The East is Read: Early Modern Conceptions of Asian Thought.

This course explores the historical and literary backgrounds to modern Chinese culture by looking into different cultural characteristics of Chinese culture, customs, myths, fables, social roles, folk, fashion, dance, language and religion. In order to understand what constitutes Chinese and its transformation, the course also discusses the historical contexts of Chinese diaspora (such as Chinese communities in North America, Taiwan, and Southeast Asia) and Western conceptualizations of Chinese culture in relation to other aspects of social life, i.e. economy and politics. No previous background in Chinese language or culture is required.

FORMAT: Lecture/discussion

PREREQUISITE: None

CROSS-LISTING: CTMP 2080.03

CHIN 2290.03: Emerging Giants: The Economic Rise of China and India.

This course examines the economic history, current issues, and future trends of China and India, answering such questions as: What explains China’s and India’s growth? How is climate change affected by this growth? How are global labour markets affected? Must growth lead to rising inequality? Is democracy required for development?

FORMAT: Lecture

PREREQUISITE: A grade of C or better in ECON 1001.03 and ECON 1002.03

CROSS-LISTING: ECONS 2223.03

CHIN 3030X/Y.06: Advanced Chinese (Mandarin).

For students with intermediate-level background in Mandarin Chinese, this course is a continuation of CHIN 2030.06 Intermediate Chinese (Mandarin). The course aims to develop further the four language skills—listening, speaking, reading, and writing. It seeks to enhance the students’ vocabulary in commonly used characters and phrases and provide students with further understanding of Chinese grammar, abilities to read expository and narrative writings, speaking skills to cope with real life situations, writing skills of short essays, as well as further understanding of Chinese culture and society.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture and lab

EXCLUSION: Native speakers of Chinese (any dialect)

CHIN 3050.03: Topics in Asian Cinema.

Each year will focus on specific topics as explored in the cinema of various Asian countries. Particular attention will be given to how Asian filmmakers employ different cinematic genres in their treatments of diverse aspects of Asian societies and cultures.

FORMAT: Film screening with lecture/discussion

CROSS-LISTING: THEA 3350.03
CHIN 3062.03: Modern Chinese Literature in Revolutionary Times.
A survey of representative works in modern Chinese literature, this course is designed to enhance students' understanding of modern Chinese society and culture through reading works by major Chinese authors from the Republican period, over three decades—1919 to 1949. It was a period of cultural clashes between traditional Chinese culture and Western influences, a time of wars, political and ideological struggles and changes. All readings are in English, as is the language of instruction. A background in Chinese language, culture, and/or literature is encouraged but not required.

FORMAT: Lecture and discussion

CHIN 3080.03: Literature of the Asian Diaspora.
Literature of the Asian Diaspora encompasses literature written in English by writers of Asian descent and heritage. Each year may have a specific focus, such as Asian Canadian and Asian American, Anglo-Asian, or Asian Australian literature. The course will concern itself with what constitutes Asian diasporic literature, its various historical and social contexts, as well as its narrative traditions and innovations.

FORMAT: Lecture/discussion
CROSS-LISTING: ENGL 3087.03

Classics
Location: Marion McCain Arts and Social Sciences Building
6135 University Ave., Room 1172
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3468
Fax: (902) 494-2467
Email: claswww@dal.ca
Website: www.dal.ca/classics

Dean
Sumner-Humphrey, R., ATCL Dip (Trinity College, London), BA, MA (Cantabury), PhD (Toronto)

Chair
Hankey, W. J. (494-2467)

Undergraduate Advisor
Vares, E., BA (Queen’s), MA (Dalhousie), PhD (UBC)

Professors Emeriti
Friedrich, R., Dr. Phil. (Göttingen)
Starnes, C. J., BA (Bishop’s), STB (Harv), MA (McGill), PhD (Dalhousie)

Professor
Hankey, W. J., BA (Vindal), MA (Dalhousie), DPhil (Oxon)

Associate Professor
Diamond, E., BA (Dalhousie), PhD (Northwestern)
Fournier, M., BA, MA (Dalhousie), PhD (IB)

Assistant Professors
Firanescu, D. R., PhD (Bucharest)
MacLeod, L. M., BA (Brock), MA, PhD (Dalhousie)
Mitchell, J., BA (McGill), PhD (Stanford)
O’Brien, P. H., BA (Vindal), MA, MA, PhD (BU)
Varto, E., BA (Queen’s), MA (Dalhousie), PhD (UBC)

I. Introduction
Classics is the study of the ancient Greeks and Romans: their myths, mysteries, and, games, their epic, comedies, and tragedies, their languages, arts, and architecture, their religions, philosophies, and sciences. We examine how they constructed their relations to nature, literally created “history”, and discovered how terrible the human is. We learn their magic, blessings, and curses, their politics and laws, their social structures, and ways of making war. We look at their sex lives, how they died, and what they used for money. Classics tells the story of the rise and fall of their empires, and of what has indelibly lasted after imperial military and political forces collapsed. We investigate how what the Greeks and Romans became depended on encounters with the peoples, cultures, philosophies, technologies of war and peace, politics and religions of Egypt and North Africa, of Judea, Lebanon, and Syra, of Arabia and Persia, and of Tuscany and the Eurasian North. And Classics looks at how, out of those same meetings, new religions and philosophies evolved, giving us the literatures, arts, and politics of Greek, Latin, and Arabic Christianities, of Hebrew, Greek, and Arabic Judaisms, and of Islam.

We start from the remotest origins of human history, make a long stop at the “Classical” period, become what some regard as decadent, and go up to the end of the Middle Ages. We are at home in Athens and Rome, in Constantinople and Istanbul, in Carthage, Alexandria and Jerusalem, in Antioch, Damascus, and Baghdad, in Cordoba and Palermo, in Paris, Oxford, Fribourg, and Cologne, and we encamp at Hadrian’s Wall, once the boundary of “civilization”. Languages, chiefly Greek and Latin, are both our pleasure and our necessity, but Classics is much more than the study of languages, it study lays the foundation of self-knowledge.
G. Minor in Ancient History
See Minors in the College of Arts and Science section of this calendar (page 128).

H. Minor in Classical Literature
See Minors in the College of Arts and Science section of this calendar (page 128).

I. Minor in Classics: Ancient Philosophy
See Minors in the College of Arts and Science section of this calendar (page 128).

J. Minor in Classics: Medieval Philosophy
See Minors in the College of Arts and Science section of this calendar (page 128).

III. Course Descriptions

NOTES:
1. Not all courses are offered every year. Please consult the current timetable or the Classics Department (494-4800) to determine this year’s offerings.
2. The introductory courses, and the more elementary courses in Ancient History and Religion, and Classical Philosophy listed below do not require knowledge of the ancient languages. However, students who plan to do advanced work in any of these areas are advised to begin study of the appropriate languages as early as possible.
3. The Department of Classics offers courses at three levels in Arabic. Descriptions for these courses can be found on page 142 of the calendar.

CLAS 0400.00: Honours Examination
Details available from the department.

PREREQUISITE: CLAS 2700X/Y.06 or CLAS 2800X/Y.06
FORMAL: 'a' Writing Requirement, Lectures plus tutorials

CLAS 1010X/Y.06: Ancient History: God-Kings, Spartans and Caesars.
Consideration of the pre-classical Near Eastern civilizations (Mesopotamian, Egyptian, Hebrew etc.) in the first term is followed in the second by treatment of the civilizations of Greece and Rome. The course concludes with a consideration of the dissolution of Roman Imperial power and the development of the Christian and Islamic cultures. Particular attention will be paid to political, cultural and social history. As the course is intended as an introductory one, no special preparation is expected. There is no foreign language requirement. This course fulfills the first year writing requirement.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMAL: 'a' Writing Requirement, Lectures plus tutorials

An introductory survey of the traditional religious narratives of ancient civilizations including Mesoopotamian, Egyptian, Israel, Greece, and Rome. Of special interest: the function of myth in shaping and expressing a culture's understanding of the divine, the institutionalized human community (religion, the family, government), and the natural world; the interrelationships of the myths of these civilizations; the reception of these traditions in the origins of Christian and Islamic culture. The traditional narratives and their broader cultural contexts will be approached through study of primary sources including epic, tragic, and didactic poetry, hymnography, historiography, philosophy, the visual arts, and architecture. This course fulfills the first year writing requirement.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMAL: 'a' Writing Requirement, lecture plus tutorials

CLAS 1600.03: Sanskrit I.
This course provides students with all the basic tools required for the study of Sanskrit, with a particular emphasis on basic Sanskrit grammar. Students will learn the Devanagari script, several common nominal forms and the basics of the verbal system, as well as develop a competency in basic reading and imitation.

EXCLUSION: CLAS 2100X/Y.06

CLAS 1700X/Y.06: Introductory Ancient Greek.
Begin learning the language of ancient Greek poets and philosophers in this introduction to Ancient Greek, through the study of its basic grammar. The aim of the course is to bring the student by the end of the year to read basic passages of ancient Greek texts.
CLAS 1800X/Y.06: Introductory Latin.
Begins learning the language of the ancient Romans in this introduction to Latin, through study of its basic grammar. The aim of the course is to enable students to read in Latin. NOTE: Students beyond their first year of university study should register under the course code 2810X/Y.06. NOTE: Credit can only be given for one course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMATE: Lecture
EXCLUSION: CLAS 1801.03 and 1802.03

CLAS 1900X/Y.06: Introductory Classical Hebrew.
An introduction to Classical Hebrew through the study of its basic grammar. The aim of the course is to read texts in Hebrew.
NOTE: Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.
FORMATE: Lecture
EXCLUSION: CLAS 1901.03 or 1902.03

CLAS 2024.03: Philosophy and God.
Does god exist? Can God be known? Have a nature? Do evil? Beginning by occupying the same ground in religion, philosophy has asked these questions. Starting with Pythagoras, Empedocles, Plato, Aristotle, Epicurus, and continuing with their pagan Jewish, Christian, and Islamic followers, we shall learn to state the answers of sages and mystics with historical accuracy and to judge their persuasive power.
FORMATE: Lecture/discussion
CROSS-LISTING: RELS 2200

CLAS 2025.03: Nature, the Human, Community and the Divine in the Pre-Modern West.
What is nature? What is the proper relationship between nature and the human being, political community, and divinity? This course will investigate ancient Greek, Roman, Jewish, Christian and Islamic answers to these questions through the study of literature, philosophy, art and architecture of the Pre-Modern West.
FORMATE: Lecture/team-taught
CROSS-LISTING: RELS 2205

CLAS 2026.03: Paganism.
"Pagan" originated as a derogatory Christian designation for ignorant conservative rustics who kept to the pre-Christian religions. We shall look at those religions in their origins, nature, and development in antiquity, their continuations in the Middle Ages and modernity, and their persistence and revival in the contemporary world.
FORMATE: Lecture/discussion
CROSS-LISTING: RELS 2206

CLAS 2027.03: Magic, Religion, and Philosophy.
Reading the Greek Magical Papyri, as well as curse tablets and binding spells from ancient sources, we will explore the interactions of, and relations between, magic, religion, and philosophy in antiquity. The focus will be on both the practical and theoretical aspects of magic in the Greek and Roman worlds.
FORMATE: Lecture
CROSS-LISTING: RELS 2207

CLAS 2100X/Y.06: Gods, Heroes, and Monsters: Ancient Mythology.
An introductory survey of the traditional religious narratives of ancient civilizations including Mesopotamia, Egypt, Israel, Greece, and Rome. Of special interest: the function of myth in shaping and expressing a culture's understanding of the divine, the institutions of human community (religion, the family, government), and the nature of the interrelationships of the myths of those civilizations, the reception of those traditions in the origins of Christian and Islamic culture, the traditional narratives and their broader cultural contexts will be approached through study of primary sources including epic, tragic, and didactic poetry, hymns, oracles, historiographic philosophy, the visual arts, and architecture.
NOTE: Credit can only be given for one course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMATE: Lecture
PREREQUISITE: Students must be beyond the first year and have completed the writing requirement.
EXCLUSION: CLAS 1800X/Y.06, RELS 1200X/Y.06

CLAS 2209.03: The Roman World from Constantine to Theodosius (312-395).
This course covers one of the most important periods of Roman history in which Christianity became the dominant religion in the empire and foreign peoples threatened the existence of the empire itself. This course is open to first-year students. There is no foreign language requirement.
FORMATE: Seminar
CROSS-LISTING: HIST 2202.03, HIST 2204.03

CLAS 2214.03: The Roots of Greek Civilization: From Crete and Troy to the Rise of Athens.
A history of Archaic Greek culture from the Bronze Age palaces of Crete and Mycenaean through the development of the Greek city-states. Topics to be discussed include prehistory, palaces and shipwrecks, art and archaeology, the world of Homer, poetry, archaic poetry and thought, colonization, and cultural interaction between the Greek world, the Near East, and Egypt. No knowledge of Greek is expected.
FORMATE: Lecture/discussion
PREREQUISITE: Students must be beyond the first year and have completed the writing requirement.

CLAS 2215.03: The Classical Greek World: Athens, Sparta, and a Century of Conflict.
A history of Classical Greek culture from the rise of Athens and Sparta as the dominant Greek city-states to the fall of Athens in the Peloponnesian Wars and the death of Socrates. Topics to be discussed include the rise of democracy, the culture and society of the Athenian "Golden Age", drama, art and architecture, empire building, and the Greeks at war, first with the Persian Empire and then with each other. No knowledge of Greek is expected.
FORMATE: Lecture/discussion
PREREQUISITE: Students must be beyond the first year and have completed the writing requirement.

CLAS 2216.03: Alexander the Great and the Hellenistic Kings: Transforming Ancient East and West.
A history of Late Classical and Hellenistic Greek culture from the end of the Peloponnesian Wars through the empire of Alexander the Great to the Hellenistic World. Topics to be discussed include relations between and among the Greek city-states and the Persian Empire, developments in art, religion, literature, and philosophy, the culture and legacy of Alexander, and the new world order of kings and kingdoms he ushered in. No knowledge of Greek is expected.
FORMATE: Lecture/discussion
PREREQUISITE: Students must be beyond the first year and have completed the writing requirement.

CLAS 2220.03: Ancient Israel.
Students will become familiar with the broad outlines of ancient Israelite history, with specific attention to Israel's relationship to its immediate neighbors and the major imperial powers from the 2nd millennium BCE to first century CE. This will entail an initial survey of biblical texts in order to lay an adequate understanding of ancient Israel's self-conception, followed by a detailed survey of Israel's interaction with other nations, including early Mesopotamia, Egypt, Assyria, Babylonia, Persia, the Seleucid empire, and Rome.
FORMATE: Lecture and seminar presentations
CROSS-LISTING: HIST 2230.03, RELS 2230.03

CLAS 2231.03: The Rise of Rome: Consuls, Classes, and World Conquest.
How did a little village conquer the world? This course follows Rome's gradual expansion across Latium, Italy, and finally the whole Mediterranean. Questionable myths, aggressive rhetoric, barely historic, and political propagandists complement the archaeological record as we trace the development and decline of Republican institutions and the Republic's descent into shattering, civil war. Class tensions, continuous foreign conflict, and still famous figures like Brutus, Cato...
Cicero, and Caesar feature prominently) in this vigorous study of a parapragmatic political and social problem: the destiny of Republican Rome. Students will be expected to familiarize themselves with both primary and secondary materials, but no knowledge of Latin is required. The material covered in this course is continued in CLAS 2232 / HIST 2091.

PREREQUISITE: Prior fulfillment of the writing requirement. CROSS-LISTING: HIST 2091.03

CLAS 2232.03: The Fall of Rome: Caesars, Saints, and Warlords.

Rome did not fall in a day, or even a century. The period of imperial power included Rome's decline. It also includes its greatest power and glory. In this chronological survey of the Roman Empire, we will trace the rise of autocracy, the causes of rare but destructive civil wars, and the transformation of Roman political institutions from Augustus to Diocletian. A lively look at the growth of urban life in the West, at the limits of Roman identity throughout the empire, at the fearful economic and military crisis of the 3rd century, at the adoption of official Christianity, and at the challenges of foreign invasion will lead us to ponder whether the "Decline and Fall" model of Roman imperial history is still valid. Students will be expected to familiarize themselves with both primary and secondary materials, but no knowledge of Latin is required. This course is a continuation of the material covered in CLAS 2231 / HIST 2090 at but that is not a prerequisite. CROSS-LISTING: HIST 2091.03

CLAS 2233.03: Roman Legions and the Barbarians.

This course examines the origins, refinement, and eventual collapse of the Roman military machine. Grand strategy, field tactics, and the analysis of specific battles complement our study of the changing relationship between the army and Roman society and the former's role in building and breaking the political order from 500 BC to 500 AD. FORMATA: Lecture CROSS-LISTING: HIST 2023.03

CLAS 2234.03: Death, Sex, and Gold in the Ancient Roman World.

We will explore ancient Roman beliefs and practices concerning the afterlife, sexuality, the social duties of men and women, marriage, family life, and slavery. We will also examine religious rituals, temples, and markets are just some of the places at which Romans defined, defended, and disdained each other's identities as men, women, and economic players. A journey into other art, always elusive, sometimes altering aspects of the pre-Christian Mediterranean. FORMATA: Lecture/tutorial CROSS-LISTING: HIST 2002.03

CLAS 2281.03: Christian Beginnings: The Orthodox and Oriental Churches.

This course traces the development of Christianity from its origin as a Jewish sect to its status as the dominant religion within the Byzantine Empire. The Christian religion was transformed by the rise of the Roman Emperors identified itself with the persecuted Christian sect of the first three centuries through the call of the martyrs, articulated in the increasing importance of relic, icon, and pilgrimage to holy places. The seven ecumenical councils (325-787) progressively defined the Orthodox faith and resulted in the rise of Oriental churches, rejecting aspects of the definitions. Through use and end-date of 843 (when the icon was finally accepted) themes will be treated by attention to historical events (including the rise of Islam), art, architecture, liturgy, and various genres of literature (including hagiography). FORMATA: Lecture CROSS-LISTING: RELS 2281.03 EXCLUSION: CLAS 3280S/9.06

CLAS 2361.03: Ancient Philosophy: From Thales to Plato.

This course covers the period in Ancient Philosophy from Thales to Plato. Pre-Socratics, Sophists, Middle Socrates, and selected Platonic dialogues. The period from Aristotle to Plotinus is covered in CLAS 2362.03. FORMATA: Lecture CROSS-LISTING: PHIL 2361.03

CLAS 2362.03: Ancient Philosophy: From Aristotle to Plotinus.

This course covers the period in Ancient Philosophy from Aristotle to Plotinus: selected texts of Scientific, Empiricism, Pyrrhonian and Academic Scepticism, Middle Platonism, Neoplatonism. FORMATA: Lecture CROSS-LISTING: PHIL 2362.03

CLAS 2365.03: Plato and the Case of Socrates: Philosophy on Trial.

Socrates (469-399 BCE) never wrote a single word, but posed such thrust to Athens that a jury put him to death for the alleged ethical corruption and impiety of his thought. This course will explore the revolutionary life and thought of Socrates, and consider whether the jury’s decision against him was justified. FORMATA: Lecture CROSS-LISTING: RELS 2365, PHIL 2365

CLAS 2366.03: Gods, Beasts and The Political Animal: Plato, Aristotle, and their Legacy.

We will study some of the most important Platonic dialogues and Aristotelian treatises, to understand the supremely influential views of Plato and Aristotle on diversity, nature, the human, and political community. We will examine the rejection of Platonic-Aristotelian idealism by Stoic, Epicurean and Skeptic schools. Subjects treated include ethics, politics, metaphysics, logic, aesthetics, and psychology. FORMATA: Lecture CROSS-LISTING: RELS 2366, PHIL 2366

CLAS 2515.03: Myth into Film I: The Greek World.

An introduction to classical myth and culture through the medium of film. Cinema has always drawn on different historical periods, yet its connection with the ancient world remains one of the most significant. This course explores cinema’s reconstruction and interpretation of the ancient world, using both ancient and modern sources. FORMATA: Lecture & discussion CROSS-LISTING: RELS 2515.03

CLAS 2600.03: Sanskrit II.

This course develops further the basic grammar and vocabulary of Introductory Sanskrit I, emphasizing the use of Sanskrit in translation of simple Sanskrit texts.

PREREQUISITE: RELS 1600.03 or CLAS 1600.03 CROSS-LISTING: RELS 2600.03

CLAS 2700X/Y.06: Intermediate Greek.

A continuation of CLAS 1700 and the normal second-year course in Greek. The work of the course is divided equally between formal grammar sessions and the reading of Greek texts from Xenophon, Lysias and Plato. In the grammar sessions a complete and systematic review of all Greek grammar is undertaken during which the student meets the more difficult forms and constructions which are omitted in CLAS 1700. The aim of the course is to prepare the student to read the philosophical and dramatic texts of the 5th century BC. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMATA: Seminar PREREQUISITE: CLAS 1700X/Y.06 or 2700X/Y.06

CLAS 2710X/Y.06: Greek Prose.

See description under CLAS 1700X/Y.06. Students beyond their first year of university study should register under this course code (2710X/Y), instead of 1700X/Y.06 For additional information, please consult the Classics undergraduate advisor. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMATA: Seminar EXCLUSION: CLAS 1700X/Y.06

CLAS 2800X/Y.06: A Study of Latin Prose and Poetry.

A study of the poetry and prose literature of Rome through a selection of texts. Particular attention is paid to improving the students' command of the grammar and syntax of the Latin language. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMATA: Seminar PREREQUISITE: CLAS 1800X/Y.06 or 2810X/Y.06

Classics 155
FORMA T: Lecture and discussion

A theme will be examine the formation of doctrine and discipline in relation to schisms, heresies of text, music and artistic, architectural, and archaeological evidence, it will

invasions. Moving from North Africa to Western Europe, and using a combination

This course will consider the formation of Catholicism (Latin Christianity) up to

CLAS 3016.03: Meetings Between Hellenism and the

Islam, we consider its meetings with Christianity and Judaism especially in Spain
during the first six centuries of the Christian era. After treating the constitution of

Judaism, Christianity and Islam until the

East to Philo the Jew.

We consider the constitution of Hellenism in relation to Eastern cultures as this

emerges in Homer and Hesiodus, the emergence of philosophy and the polis.

We consider the formation of Catholicism (Latin Christianity) up to

the 12th century in relation to the Graeco-Roman context and the barbarian

invasions. Moving from North Africa to Western Europe, and using a combination of
text, music and artistic, architectural, and archaeological evidence, it will

the formation of doctrine and discipline in relation to schisms, heresies and

Hebrew scriptures.

A continuation of grammar study and translation of selected texts from the

Hebrew scriptures.

NOTE: Credit can only be given for this course if X and Y are completed in

consecutive terms and partial credit cannot be given for a single term.

FORMA T: Seminar

A careful reading of a selection of Platonic dialogues. The dialogues studied will

vary from year to year.

This seminar involves the detailed study of a group of dialogues. The choice of

dialogues varies from year to year.

This course offers an introduction to the art and architecture of the ancient Near

Eastern and Classical worlds, with an emphasis on understanding culture

through their artistic and material remains. Various types and forms of artistic expression

will be considered as they develop and change over time and space in their social,

political, intellectual, and religious contexts.

FORMA T: Lecture/discussion

We consider the constitution of Hellenism in relation to Eastern cultures as this

emerges in Homer and Hesiodus, the emergence of philosophy and the polis.

We consider the formation of Catholicism (Latin Christianity) up to

the 12th century in relation to the Graeco-Roman context and the barbarian

invasions. Moving from North Africa to Western Europe, and using a combination of
text, music and artistic, architectural, and archaeological evidence, it will

the formation of doctrine and discipline in relation to schisms, heresies and

Hebrew scriptures.

A continuation of grammar study and translation of selected texts from the

Hebrew scriptures.

NOTE: Credit can only be given for this course if X and Y are completed in

consecutive terms and partial credit cannot be given for a single term.

FORMA T: Seminar

A careful reading of a selection of Platonic dialogues. The dialogues studied will

vary from year to year.

This seminar involves the detailed study of a group of dialogues. The choice of

dialogues varies from year to year.

This course offers an introduction to the art and architecture of the ancient Near

Eastern and Classical worlds, with an emphasis on understanding culture

through their artistic and material remains. Various types and forms of artistic expression

will be considered as they develop and change over time and space in their social,

political, intellectual, and religious contexts.

FORMA T: Lecture/discussion

We consider the constitution of Hellenism in relation to Eastern cultures as this

emerges in Homer and Hesiodus, the emergence of philosophy and the polis.

We consider the formation of Catholicism (Latin Christianity) up to

the 12th century in relation to the Graeco-Roman context and the barbarian

invasions. Moving from North Africa to Western Europe, and using a combination of
text, music and artistic, architectural, and archaeological evidence, it will

the formation of doctrine and discipline in relation to schisms, heresies and

Hebrew scriptures.

A continuation of grammar study and translation of selected texts from the

Hebrew scriptures.

NOTE: Credit can only be given for this course if X and Y are completed in

consecutive terms and partial credit cannot be given for a single term.

FORMA T: Seminar

A careful reading of a selection of Platonic dialogues. The dialogues studied will

vary from year to year.

This seminar involves the detailed study of a group of dialogues. The choice of

dialogues varies from year to year.

This course offers an introduction to the art and architecture of the ancient Near

Eastern and Classical worlds, with an emphasis on understanding culture

through their artistic and material remains. Various types and forms of artistic expression

will be considered as they develop and change over time and space in their social,

political, intellectual, and religious contexts.

FORMA T: Lecture/discussion

We consider the constitution of Hellenism in relation to Eastern cultures as this

emerges in Homer and Hesiodus, the emergence of philosophy and the polis.

We consider the formation of Catholicism (Latin Christianity) up to

the 12th century in relation to the Graeco-Roman context and the barbarian

invasions. Moving from North Africa to Western Europe, and using a combination of
text, music and artistic, architectural, and archaeological evidence, it will

the formation of doctrine and discipline in relation to schisms, heresies and

Hebrew scriptures.

A continuation of grammar study and translation of selected texts from the

Hebrew scriptures.

NOTE: Credit can only be given for this course if X and Y are completed in

consecutive terms and partial credit cannot be given for a single term.

FORMA T: Seminar

A careful reading of a selection of Platonic dialogues. The dialogues studied will

vary from year to year.

This seminar involves the detailed study of a group of dialogues. The choice of

dialogues varies from year to year.

This course offers an introduction to the art and architecture of the ancient Near

Eastern and Classical worlds, with an emphasis on understanding culture

through their artistic and material remains. Various types and forms of artistic expression

will be considered as they develop and change over time and space in their social,

political, intellectual, and religious contexts.

FORMA T: Lecture/discussion

We consider the constitution of Hellenism in relation to Eastern cultures as this

emerges in Homer and Hesiodus, the emergence of philosophy and the polis.

We consider the formation of Catholicism (Latin Christianity) up to

the 12th century in relation to the Graeco-Roman context and the barbarian

invasions. Moving from North Africa to Western Europe, and using a combination of
text, music and artistic, architectural, and archaeological evidence, it will

the formation of doctrine and discipline in relation to schisms, heresies and

Hebrew scriptures.

A continuation of grammar study and translation of selected texts from the

Hebrew scriptures.

NOTE: Credit can only be given for this course if X and Y are completed in

consecutive terms and partial credit cannot be given for a single term.

FORMA T: Seminar

A careful reading of a selection of Platonic dialogues. The dialogues studied will

vary from year to year.

This seminar involves the detailed study of a group of dialogues. The choice of

dialogues varies from year to year.

This course offers an introduction to the art and architecture of the ancient Near

Eastern and Classical worlds, with an emphasis on understanding culture

through their artistic and material remains. Various types and forms of artistic expression

will be considered as they develop and change over time and space in their social,

political, intellectual, and religious contexts.
CLAS 3431.03: St. Augustine’s On the Trinity Part 1.
A study of Books 6-7 of Augustine’s De Trinitate, in which he establishes what is the orthodox teaching about God through scripture and a consideration of the categories of substance, relation and act.
FORMAT: Seminar
PREREQUISITE: CLAS 3700X/Y.06 or permission of the instructor
FORMA T: Seminar
CROSS-LISTING: RELS 3431.03

CLAS 3432.03: St. Augustine’s On the Trinity Part 2.
A study of Books 8-15 of Augustine’s De Trinitate, in which he attempts to understand what has been shown in the first 7 books (the orthodox teaching about God through Scripture and a consideration of the categories of substance, relation and act) through the direction of science and speculative thought.
FORMAT: Seminar
CROSS-LISTING: RELS 3432.03

CLAS 3433.03: The Ancient Origins of Political Thought: From Homer to Aristotle.
This course will study the varied beginnings of political thought with Greek poets, historians and educators, culminating in a careful investigation of the political writings of Plato and Aristotle. We will investigate philosophical questions about the origin of the state, the purpose of political community, the different kinds of regimes or constitutions, the common good, individual freedoms, revolution, war, wealth, poverty, and slavery.
FORMAT: Lectures/tutorials
CROSS-LISTING: POLS 3434.03, PHIL 3434.03

CLAS 3500X/Y.06: Aristotle.
This seminar involves the detailed study of either Aristotle’s Metaphysics or De Anima or Physics or political and legal treatises. The choice of texts varies from year to year.
RECOMMENDED: CLAS 2561.03/2562.03
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 3500X/Y.06
CROSS-LISTING: PHIL 3500X/Y.06

CLAS 3501.03: Herodotus: Father of History, Father of Lies.
This course explores the conflicts between Persia and the Greeks as narrated by the "father of history/father of lies" as a story of exotic cultures, dramatic and bizarre events, and the actions of kings, despots, demagogues, warriors (with texts in English translation).
FORMAT: Seminar
CROSS-LISTING: HIST 3501.03

CLAS 3502.03: Thucydides and the Greek World at War.
This course explores the world of warring Greek city-states, alliances and empires, building empires, and rival polities and politicians in the Mediterranean in the 5th Century BC as recounted by Thucydides (in English translation).
FORMAT: Seminar
CROSS-LISTING: HIST 3502.03

CLAS 3503.03: Aristotle.
A careful reading of an Aristotelian treatise, or selections from several treatises. The treatise studied will vary from year to year.
PREREQUISITE: CLAS/PHIL/RELS 2356 or CLAS/PHIL/RELS 2568 or CLAS/PHIL 2561 or CLAS/PHIL 2562, or permission from instructor
FORMA T: Seminar
CROSS-LISTING: HIST 3503.03

CLAS 3515.03: Greek Tragedy.
Greek tragedy was a product of the democratic society of fifth century Athens and played a vital role in the life of the community. This course explores the nature and development of the tragic genre through a study of the plays of Aeschylus, Sophocles, and Euripides in translation. The tragedies are examined as literary works and as reflections of the dramatic and artistic theories of tragedy.
FORMAT: Lectures/discussion
PREREQUISITE: Students must be beyond first year.
EXCLUSION: CLAS 3515.03/06

CLAS 3516.03: Ancient Comedy.
Ancient Comedy ranges from the bawdy and bawdy plays of Old Comedy through the domestic and romantic ‘tragocomedies’ of Euripides to the bawdy-meets-geriatric stories of Greek and Roman New Comedy. This course examines the origins and development of the comic genre in the Greek and Roman world through a study of the plays of Aristophanes, Euripides, Menander, Plautus, and Terence in translation. It considers the nature of comedy and its function within society as well as the basic techniques and conventions of the genre itself. Topics to be studied include the ‘comic hero’, comic stereotyping, types of humor, the relationship between actor & spectator.
FORMAT: Lectures/discussion
PREREQUISITE: Students must be beyond first year.
EXCLUSION: CLAS 3516.03/06

CLAS 3525.03: Ancient Greek Epic.
This course is designed to introduce students to the heroic epics of the Ancient Greek world. Texts are read in translation and will be selected from the works of Hesiod, Homer, and Apollonius of Rhodes. This course will focus on the structure of the heroic epic (etiology/symbolism of the | hero figures), the role of women in the hero’s quest, the hero’s conflict with the divine, the role of the gods in the hero’s life, the role of the goddess in the hero’s quest, and the role of all other figures in the hero’s life.
FORMAT: Lectures/seminar
PREREQUISITE: HIST 2502.03 or 2503.03 or permission of instructor
CROSS-LISTING: HIST 3510.03

CLAS 3526.03: Ancient and Medieval History of the Persianate World.
Please see description for HIST 3511.03 in the History section of this calendar.
FORMAT: Lectures/discussion
PREREQUISITE: HIST 2502.03 or 2503.03 or permission of instructor
CROSS-LISTING: HIST 3511.03

CLAS 3601.03: Arab Caliphs, Turkish Commanders, and Persian Viziers: Islamic History, 750-1200.
A study of Islamic history from the fall of the Umayyad Caliphate in 750 to the fall of the Mongol Empire in 1206. This course will focus on the development of Islamic society and culture, the role of religion in politics and society, the rise of the Islamic Empire, and the impact of the Mongol invasion on the Islamic world.
FORMAT: Seminar
PREREQUISITE: Students must be beyond first year.

CLAS 3602.03: Ancient and Medieval History of the Persianate World.
Please see description for HIST 3511.03 in the History section of this calendar.
FORMAT: Lectures/discussion
PREREQUISITE: HIST 2502.03 or 2503.03 or permission of instructor
CROSS-LISTING: HIST 3511.03

CLAS 3661.03: Hellenistic Philosophy: Stoics and Epicureans.
A study of philosophy in the Hellenistic Age. We will investigate the development of Greek and Roman philosophy after Aristotle, focusing on Stoicism and Epicureanism. The course covers the logic, physics, and ethics of these philosophical schools, as well as their religious dimensions.
FORMAT: Seminar
PREREQUISITE: CLAS 3660.03 and 2562/06 or permission of instructor
CROSS-LISTING: RELS 3661.03

CLAS 3662.03: Hellenistic Philosophy – From Skepticism to Neoplatonism.
A study of philosophy in the Hellenistic Age. We will investigate the development of Greek and Roman philosophy after Aristotle, focusing on Stoicism and Epicureanism. The course covers the logic, physics, and ethics of these philosophical schools, as well as their religious dimensions.
FORMAT: Seminar
PREREQUISITE: CLAS 3662.03 and 2562/03 or permission of instructor
CROSS-LISTING: RELS 3662.03

CLAS 3700X/Y.06: Advanced Greek.
This course, which reads both a prose and a poetic work, is the normal third year study of Greek. Please see description for CLAS 3700X/Y.06.
PREREQUISITE: Students must be beyond first year.
EXCLUSION: CLAS 3700X/Y.06

CLAS 3701X/Y.06: Greek Epic.
A study of the Greek epic poetry of Homer and Hesiod in the original language. Please see description for CLAS 3701X/Y.06.
PREREQUISITE: CLAS 3700X/Y.06 or permission of the instructor
CLAS 3720X/Y.06: Greek Lyric.
A study of lyric poets such as Sappho, Archilochus, Simonides in the original language.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 3700X/Y.06 or permission of the instructor

CLAS 3730X/Y.06: Greek Drama: Tragedy.
A study of the Greek tragedians, Aeschylus, Sophocles, and Euripides in the original language.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 3700X/Y.06

CLAS 3731.03: Greek Drama: Tragedy I.
A study of the Greek tragedians, Aeschylus, Sophocles, and Euripides in English translation.
FORMAT: Seminar
EXCLUSION: CLAS 3730X/Y.06, CLAS 3515.03

CLAS 3732.03: Greek Drama: Tragedy II.
A study of the Greek tragedians, Aeschylus, Sophocles, and Euripides in English translation.
FORMAT: Seminar
EXCLUSION: CLAS 3730X/Y.06, CLAS 3515.03

CLAS 3750X/Y.06: Greek Authors.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 3700X/Y.06

CLAS 3760X/Y.06: Reading and Research of Greek Texts.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 3700X/Y.06

CLAS 3780X/Y.06: Greek Historians.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 3700X/Y.06

CLAS 3800X/Y.06: Roman Satire.
This course covers the origins and development of Latin satire, the only literary genre native to the Romans. Authors to be studied will typically include Horace, Juvenal, Lucilius and Ennius.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 3700X/Y.06

CLAS 3810X/Y.06: A Study of Vergil.
A study of the development and importance of Vergil’s basic themes and ideas embodied in the Aeneid. In the first part of the course special attention is given to his early work the Bucolics, where his themes begin to appear, and their development is then followed through the relevant parts of the Georgics. The main part of the course is devoted to the reading and discussions of the chief themes of the Aeneid, especially as they illustrate Roman political, religious and social ideas which have greatly influenced our own beliefs and institutions.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 3700X/Y.06

A study of selected texts of poetry and prose with an emphasis on the Augustan period. Authors studied may include Virgil, Ovid and Livy, among others. The course is primarily intended to strengthen students’ command of Latin language, but attention is given to literary and historical matters as well.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 2800X/Y.06

CLAS 3840X/Y.06: Latin Philosophical Texts.
The purpose is to give students experience in reading philosophical Latin. The texts are normally chosen from medieval authors such as Anselm, Aquinas, and Bonaventura.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: First-year Latin or its equivalent

CLAS 3841.03: Latin Philosophical Texts: Aquinas.
The purpose of this course is to give students experience in reading philosophical Latin. The texts will be chosen from the works of Aquinas.
FORMAT: Seminar
PREREQUISITE: First-year Latin or its equivalent
EXCLUSION: CLAS 3840X/Y.06

CLAS 3842.03: Latin Philosophical Texts: Anselm and Bonaventura.
The purpose of this course is to give students experience in reading philosophical Latin. The texts will be chosen from the works of Anselm and Bonaventure.
FORMAT: Seminar
PREREQUISITE: First-year Latin or its equivalent
EXCLUSION: CLAS 3840X/Y.06

CLAS 3850X/Y.06: Reading and Research of Latin Texts.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 2800.06

CLAS 3900X/Y.06: Philosophy of Aristotle.
The general scope of the Aristotelian Philosophy—the understanding of nature, the City, the aesthetic experience of humanity—is considered in relation to the argument of the Metaphysics or "First Philosophy."
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 3900.06.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 3900.06.
EXCLUSION: CLAS 3840X/Y.06

CLAS 4010.03: Islamic Philosophy: al-Ghazali.
Abu Hamid al-Ghazali (1058-1111) is one of the greatest Muslim thinkers of all time. This course is an introduction to his thought, focusing on al-Ghazali’s “two-tier” approach to theology—esoteric theology for the masses and exoteric theology for the select few—and on his attitude to Islamic philosophy and Islamic mysticism (Sufism).
FORMAT: Seminar
EXCLUSION: RELS 4010.03, CLAS 5817

CLAS 4011.03: Jewish Philosophy: Maimonides.
Moses Maimonides (1135-1204) is one of the greatest Jewish thinkers of all time. This course is an introduction to his philosophical and legal writings, with special emphasis on his famous treatise The Guide of the Perplexed. Maimonides’ stance on such issues as God’s incomparability, creation, and prophecy will be compared to that of other varieties of Judaism.
FORMAT: Seminar
EXCLUSION: RELS 4010.03, CLAS 5817

CLAS 4020X/Y.06: Neoplatonism: Plato and Neoplatonism.
The philosophy of Plato and later thinkers considered as the source of Greek Philosophy, in particular the role of Plato and other earlier philosophers in the formation of Neoplatonism as a principal interest. Given alternately with CLAS 3900.06.
RECOMMENDED: CLAS 2361.03/2362.03
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
EXCLUSION: CLAS 3840X/Y.06

CLAS 4021.03: Jewish Philosophy: Maimonides.
Moses Maimonides (1135-1204) is one of the greatest Jewish thinkers of all time. This course is an introduction to his philosophical and legal writings, with special emphasis on his famous treatise The Guide of the Perplexed. Maimonides’ stance on such issues as God’s incomparability, creation, and prophecy will be compared to that of other varieties of Judaism.
FORMAT: Seminar
PREREQUISITE: Students must have completed 5 full credits of university study and RELS 2001.03 or RELS 3382.03/CLAS 3382.03/PHIL 2382.03, or permission of the instructor.
EXCLUSION: RELS 4010.03

CLAS 4040.06: Latin Philosophical Texts.
The purpose is to give students experience in reading philosophical Latin. The texts are normally chosen from medieval authors such as Anselm, Aquinas, and Bonaventura.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: First-year Latin or its equivalent
EXCLUSION: CLAS 3840X/Y.06

CLAS 4050X/Y.06: Reading and Research of Latin Texts.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 2800.06

CLAS 4060X/Y.06: Philosophy of Aristotle.
The general scope of the Aristotelian Philosophy—understanding of nature, the City, the aesthetic experience of humanity—is considered in relation to the argument of the Metaphysics or "First Philosophy."
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 3900.06.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: CLAS 3900.06.
EXCLUSION: CLAS 3840X/Y.06

CLAS 4070.03: Islamic Philosophy: al-Ghazali.
Abu Hamid al-Ghazali (1058-1111) is one of the greatest Muslim thinkers of all time. This course is an introduction to his thought, focusing on al-Ghazali’s “two-tier” approach to theology—esoteric theology for the masses and exoteric theology for the select few—and on his attitude to Islamic philosophy and Islamic mysticism (Sufism).
FORMAT: Seminar
EXCLUSION: RELS 4010.03, CLAS 5817

CLAS 4080.03: Jewish Philosophy: Maimonides.
Moses Maimonides (1135-1204) is one of the greatest Jewish thinkers of all time. This course is an introduction to his philosophical and legal writings, with special emphasis on his famous treatise The Guide of the Perplexed. Maimonides’ stance on such issues as God’s incomparability, creation, and prophecy will be compared to that of other varieties of Judaism.
FORMAT: Seminar
PREREQUISITE: Students must have completed 5 full credits of university study and RELS 2001.03 or RELS 3382.03/CLAS 3382.03/PHIL 2382.03, or permission of the instructor.
EXCLUSION: RELS 4010.03

CLA
CLAS 4018.03: Christian Theology in the Lands of Islam: John of Damascus.
John of Damascus (d. 749) is one of the greatest Christian theologians of the Patristic age. Though he wrote in Greek, he was a Christian Arab (his Arabic name is Mansur ibn Sarjun), who lived under Muslim rule and was employed as a public official in the Umayyad administration in Damascus. The course will focus on his theological works (especially his summa of Christian theology, entitled On the Orthodox Faith, and his three treatises in defence of the icons), their Christian sources, and their Islamic context.

PREREQUISITE: At least one of RELS 1002.03, RELS 2004.03, RELS 2281.03, RELS 2282.03 RELS 3009.03 Foundation Year Program or permission of instructor.

CROSS-LISTING: RELS 4018.03

CLAS 4019.03: Philo Judeaus.
Reconciling Jewish Scripture and Plato, Philo culminates Second Temple Jewish thought and founds the Christian treatment of Scripture. He is the most influential Jewish theologian and presents the High Priest as priest of the cosmos so he is crucial both to understand our past the to carry us into the future.

FORMAT: Seminar

PREREQUISITE: At least one course at the second year or above in CLAS or RELS

CROSS-LISTING: RELS 4019.03

CLAS 4100.03: Reading and Research in Latin Texts.
Advanced reading of a Latin author or genre with attention to secondary literature and the critical reception of the works in question.

FORMAT: Seminar

PREREQUISITE: CLAS 3810X/Y.06 or CLAS 3820X/Y.06, or permission of the instructor.

CLAS 4450X/Y.06: Medieval Interpreters of Aristotle.
The course considers Latin philosophical texts of the Middle Ages. Given alternately with CLAS 4500X/Y.06.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar

CROSS-LISTING: RELS 4450.06

CLAS 4500X/Y.06: Seminar on Neoplatonism.
The course considers the origins and nature of Greek Neoplatonism. Given alternately with CLAS 4450X/Y.06.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar

Selected topics from the transition from Classical to Christian culture are studied. Particular attention is paid to the connection between religious innovation and the effect of the new beliefs on literature, art and philosophy.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar

CROSS-LISTING: CLAS 5530X/Y.06

CLAS 4540.03: Ammianus Marcellinus and his World.
This course approaches the history and culture of the fourth century AD through its most important historian, Ammianus Marcellinus. The course will focus on (but not be limited to) a careful study of Books 14-25 of the Res Gestae, which span the reigns of Ammianus’ hero, Julian the Apostate.

PREREQUISITE: CLAS 3810X/Y.06 or CLAS 3820X/Y.06 or permission of instructor.

CROSS-LISTING: CLAS 5540.03

CLAS 5613.03: Plato.
A careful reading of a selection of Platonic dialogues. The dialogues studied will vary from year to year.

FORMAT: Seminar

CROSS-LISTING: CLAS 5401.03

EXCLUSION: CLAS 5401.03, CLAS 5603.03

CLAS 5817.03: Islamic Philosophy: al-Ghazali.
Abu Hamid al-Ghazali (1058-1111) is one of the greatest Muslim thinkers of all time. This course is an introduction to his thought, focusing on al-Ghazali’s “two-tier” approach to theology – exoteric theology for the masses and esoteric theology for the select few – and on his attitude to Islamic philosophy and Islamic mysticism (Sufism).
Contemporary Studies

Location: University of King's College
Halifax, NS B3H 2A1

Telephone: (902) 422-1271
Fax: (902) 422-3395
Website: http://arts.dal.ca/

Dean
Samrauy-Murray, R., ATCL Dip (Trinity College, London), BA, MA (Cantab), PhD (Eton)

Director
Boon, S., BA (Queen's), MA, PhD (York)

Teaching Staff at the University of King's College
Boon, S., BA (Queen's), MA, PhD (York)

Teaching Staff at the University of Dalhouse University
Boon, S., BA (Queen's), MA, PhD (York)

Brendas, D., BA (Toronto), MA, PhD (Northwestern)

Birke, M., BA (Vind), MA (Concordia)

Cillit, S., BA (UWO), MA (Trent), PhD (York)

Edwards, E., BA, MA (Dalhousie), PhD (Cambridge)

Glowacka, D., MA (Wroclaw), MA, PhD (SUNY)

Hales, W., BA, MA (UWic)

Kemeny, K., BA (McGill), DPil (Duis)

Korn, S., BA (Carleton, MA, PhD (Toronto)

Levit, G., Dipl, (St. Petersburg, Dr rer. nat. (Oldenburg)

McGee, G., BA, MA, PhD (Toronto)

Penney, L., BA (Vend), MA (UWO), PhD (SUNY)

Robertson, M., BA (Vend), MA (Dalhousie), PhD (Cambridge)

Wolfe, K., BA (McGill), MA, PhD (Toronto)

McOuat, G., BA, MA, PhD (Toronto)

Penny, L., BA (Vend), MA (UWO), PhD (SUNY)

Penny, L., BA (Vend), MA (UWO), PhD (SUNY)

Teaching Staff at Dalhouse University

Brittain, A., BA, MA (Toronto), PhD (Princeton)

I. The Contemporary Studies Program

The world is becoming more diverse and complex, and our assumptions about it are constantly challenged. The Contemporary Studies Program is an attempt to make sense of today's world as a whole by considering the important writers, thinkers and artists of the 19th, 20th and 21st century, both on their own terms and in relation to some of the fundamental themes of our time. The three 'core' courses give students a framework for understanding political, scientific, and aesthetic phenomena in the twentieth century. The non-required courses focus on various aspects of these often contradictory contemporary phenomena.

II. Degree Options

A. Combined Honours

The Contemporary Studies Program offers a Combined Honours B.A program. This program is designed to provide students with a broad and deep understanding of the major issues of our time, as well as to develop critical thinking skills.

1. Completion of either the King's Foundation Year Program (either the three or the four course version) or at least two appropriate first year full courses at Dalhousie.

2. Completion of either the Dalhousie/King's Combined Honours BA degree, interests, and future plans.


4. At the conclusion of an honours program a student's record must show a grade higher than that required in a 15 credit minor or 20 credit major program.

B. Minor in Contemporary Studies

The Contemporary Studies Program offers a Minor in Contemporary Studies. This minor is designed to provide students with a broad understanding of the major issues of our time, as well as to develop critical thinking skills.

1. Completion of either the King's Foundation Year Program (either the three or the four course version) or at least two appropriate first year full courses at Dalhousie.

2. Completion of either the Dalhousie/King's Combined Honours BA degree, interests, and future plans.


4. At the conclusion of an honours program a student's record must show a grade higher than that required in a 15 credit minor or 20 credit major program.

B. Minor in Contemporary Studies

The Minor in Contemporary Studies is designed to provide students with a broad understanding of the major issues of our time, as well as to develop critical thinking skills.

1. Completion of either the King's Foundation Year Program (either the three or the four course version) or at least two appropriate first year full courses at Dalhousie.

2. Completion of either the Dalhousie/King's Combined Honours BA degree, interests, and future plans.


4. At the conclusion of an honours program a student's record must show a grade higher than that required in a 15 credit minor or 20 credit major program.

C. Courses offered at the University of King's College

All courses offered in Contemporary Studies must be taken at King's. Students are encouraged to take at least one course from each of the four listed above-mentioned departments and programs, as well as from the following subjects: Early Modern Studies, and History of Science and Technology. In addition, some professors in the Dalhousie Faculty of Arts and Social Sciences are members of the Contemporary Studies teaching staff and offer courses at King's.

All students must meet the general requirements of the Faculty of Arts and Social Sciences as detailed in the Degree Requirements section of this calendar. Students who are eligible to take an honours degree are urged to apply to the Contemporary Studies Program. Because it is an honours program, the quality of work required is higher than that required in a 15 credit minor or 20 credit major program.

Applications for admission must be made to the Dalhousie department concerned and to the Contemporary Studies Office at King's on forms available from the Registrar at either Dalhousie or King's. Students normally enroll in CTMP 2000X/Y6 (the first "core" course) in their second year, and register for the Combined Honours program in either second or third year. For each individual student the entire degree program, including elective courses, is subject to supervision and approval by the Dalhousie department concerned and by the Director of Contemporary Studies.

All Contemporary Studies Program students are encouraged to acquire competence in languages through appropriate courses which are relevant to their degree, interests, and future plans.

The joint Dalhousie/King's Contemporary Studies program is based on the general requirements that the Dalhousie program outlined above. In a combined honours program, students may obtain this grade in either of them.


4. At the conclusion of an honours program a student's record must show a grade which is additional to the grades taken to complete the required 20 full courses. In a combined honours program, students may obtain this grade in either of the honours subjects. Students fulfilling this requirement in Contemporary Studies submit a research paper and defend it at an oral examination. They must enrol in the non-credit CTMP 4000.00, the Honours Thesis Seminar.

Please Note:

Students may take an Independent Readings course only when they reach their third or fourth year at King's. There are no special requirements for this course, but only one full course or the equivalent may be taken in a year. No more than two full courses of this type may be taken during a CTMP degree. The permission of a member of the teaching staff and the director is necessary in order to take these courses, and their availability is strictly limited.

B. Minor in Contemporary Studies

See Minors in the College of Arts and Science section of this calendar (page 128).

III. Courses offered at the University of King's College

All courses offered in Contemporary Studies require that students have completed at least one year of university study (minimum five full credits) prior to enrolment.
and Derrida criticize and transform structuralist interpretations of subjectivity, consider the way poststructuralist thinkers, such as Barthes, Foucault, Deleuze, French protests of May 1968, when the “students took to the streets.” We will addresses the deep structures of signs, language, political economy, cultural Saussure, Claude Levi-Strauss, Louis Althusser, and Jacques Lacan. Their work We will begin by exploring the work of structuralist thinkers such as Ferdinand de

This course will examine some of the greatest works of modern political theory, literature and philosophy. We will follow the movement in Western culture over the last 200 years from humanism to anti-humanism, and highlight the seemingly endless struggle to realize a positive vision of human freedom and equality.

NOTE: Students taking this course must register in both X and Y in consecutive terms, credit will be given only if both are completed consecutively.

FORMAT: Lecture/tutorial

CTMP 2101.03/CTMP 3011.03/CTMP 4011.03: The Lecture Series.

In some years a lecture series course is offered. Students are allowed to take up to three such courses, one for each year of upper-level study. Each course will consist of six to weekly evening lectures given by specialists from Atlantic Canada and beyond, and a weekly two-hour seminar. The lecturers will offer students reflections on a number of contemporary issues and themes. Each year a different theme will be explored.

FORMAT: Seminar evening lectures EXCLUSION: CTMP 3010.06, CTMP 4010.06

CTMP 2100.03: The Politics of Hope: From Romanticism to Anarchism and Beyond.

A look at the connection between revolutionary politics and utopianism: the course focuses on the history of Romanticism and anarchism, from Fichte to some current radical political theory. German and English and the deadly serious Russian nihilists. Our central concern is the notion of an infinite, all-powerful human freedom.

FORMAT: Lecture/tutorial

CTMP 2101.03: Apocalypse: The Revolutionary Transformation of Politics and Culture.

This course highlights the movement from revolutionary nihilism to various forms of post-revolutionary unity and integration. Beginning with Nietzsche and Dostoevsky, the course discusses how some of the great contemporary thinkers (German, French, British, American) have struggled to put modern evil in the context of a larger good.

FORMAT: Lecture/tutorial

CTMP 2115.03: The Idea of Race in Philosophy, Literature, and Art.

The course focuses on contemporary conceptions and representations of race, and on their relations to culture, history, ideology, science, and everyday lived experience. We will trace the development of the modern idea of race, in relation to European colonialism and to the development of science. We will examine contemporary debates on the concept of race in the works of philosophers, writers, artists, and social activists, considering the interrelations of race, class, and gender.

FORMAT: Lecture/tutorial

CTMP 2121.03: Structuralism and Poststructuralism.

We will begin by exploring the work of structuralist thinkers such as Ferdinand de Saussure, Claude Levi-Strauss, Louis Althusser, and Jacques Lacan. Their work addresses the deep structures of signs, language, political economy, cultural production, and the psychic. Structuralism had some surprising effects, such as the French protests of May 1968, when “the students took to the streets.” We will consider the very postmodernist thinkers, such as Bhabha, Foucault, Deleuze, and Derrida criticise and transform structuralist interpretations of subjectivity, language and the political.
CTMP 2304.03: Semiotics.

Semiotics is a philosophical discipline that studies signs, significations, and signifying systems. Because of its interest in the production of meaning, semiotics is widely applicable and has exercised a major influence on virtually every epistemological development in the second half of the twentieth century, from literary theory to critical theory. Some of its fields of study include linguistics, culture, literature, mass media, theatre, and film. Through the readings of works by de Saussure, Peirce, Morris, Jakobson, Lévi-Strauss, Barthes, Eco, and other scholars, this course will introduce students to the essential terminology and typology of semiotics. Special attention will be paid to the practical uses of semiotics as a critical and analytical tool, as well as to the variety of historical and cultural contexts in which semiotics appears.

FORMAT: Lecture/seminar

CTMP 3113.03: The Vampire: Modernity and the Undead.

Since the emergence of vampire stories in the late sixteenth century, the vampire has served as a complex symbol for forces that derive or challenge modernity. This course will examine the figure of the vampire as it appears in folklore, philosophy, fiction, poetry, film, and television. Throughout the course we will consider the works in their historical and cultural context, considering what changing ideas of the vampire tell us about early modern and contemporary views of death, sexuality, national identity, sexuality, and gender.

FORMAT: Lecture/seminar

EXCLUSION: Former CTMP 4310.06 and former CTMP 2310.06

CTMP 2322.03: The Experience of Others in Philosophy, History and Literature.

This course examines some of the contemporary theories that have addressed the issue of alterity and focuses on social mechanisms of marginalizing “the other.” We will raise questions such as what it means to live with others and to act responsibly in relation with others. The readings include philosophy (Heidegger, Levinas, Kristeva) as well as literature, political theory, and film.

FORMAT: Lecture/seminar

CTMP 2325.03: From the Postmodern to the Extreme Contemporary: 25 years of French Culture in the World.

This course considers the negotiation with post-modernity occurring within French culture and seeks to define what some now call the Extreme Contemporary. A range of texts in English translation will be considered, from philosophy to the novel, from film to poetry, from the visual arts to theatre and the cinema (France).

FORMAT: Lecture/seminar

CTMP 2330.03: Reflections on Death.

The texts in this course consist of literary and philosophical reflections on death, the “permanent and irrevocable cessation of life” (S. Freud). With references to Plato and Hegel, we will consider the ways in which death has been understood as giving meaning and structure to life. The focus will be on contemporary confrontations with “pure negativity” and on different thinkers’ attempts to articulate death as an ontological condition. We will also look at representations of death in contemporary, art, literature, and film.

FORMAT: Lecture/seminar

CTMP 2335.03: The Artist and Society.

A preoccupation of 20th century cultural life has been the relation between the creative artist and society. To what extent should the artist engage in the social and political currents of his time, or retreat into solitude? What responsibility does the artist have to society, or society to the artist? This course will examine various philosophical and artistic treatments of these themes in various social contexts. First, we will consider the question of the artist and society in terms of ancient, early modern, and 18th and 19th century aesthetic ideas. We then turn our attention to a number of 20th century reflections on this theme in such milieus as pre-war Europe, the Weimar Republic, Nazi Germany, post-war Japan, contemporary Canada, and 1970s Britain. The work of such thinkers and artists as Plato, Rousseau, Kant, Wilde, Marx, Mann, Modigliani and the Sex Pistols will be considered mainly through written texts, but also in art forms such as music and film.

FORMAT: Seminar

CTMP 2336.03: East Meets West in Popular Culture.

This course surveys the influence of Friedrich Nietzsche on Western thought and culture, from the middle of the twentieth century to the present day. We will see Nietzscheanism at work in many different schools of thought, from French existentialism and American libertarianism to various forms of contemporary anti-humanism and post-humanism.

FORMAT: Seminar

RESTRICTION: Restricted to students in their 2nd year and above.

CTMP 3110.03: The Dialectic of Enlightenment I.

In the course of criticizing tradition and integrating the experience of the Renaissance and the Reformation, in responding to the beginnings of modern natural science and modern political institutions, early modern Europeans sought to reassert...
as his highly original ideas about the relationship between knowledge, power, and
This course will examine the evolution of Foucault's approach to history, as well
from history, philosophy, and literature, to sociology, political science, and law.
anti-Hegelian historical method that was indebted both to Nietzsche's
Historian and philosopher Michel Foucault (1926-1984) was one of the most
RESTRICTION: Restricted to students in their second year and above
EXCLUSION: CTMP3410.03 for the 2008/09, 2009/10, 2010/11 academic years
memory (political, memorial, artistic, and critical).
19th and 20 centuries will be explored, alongside various genres & practices of
Modernity: Commemoration, Representation, Trauma.
In this course, we shall examine the complex relations that obtain in  Heidegger's
began to question the self-understanding evoked by the principle of critical reason.
In enlightened European culture, religion, state and society as well as science,
morality and art were gradually separated from one another under exclusively
formal points of view, and subordinated to a critical reason that took on the role of
a supreme judge. By the beginning of the nineteenth century, many Europeans
began to question the self-understanding evoked by the principle of critical reason.
This course will consider how enlightened freedom and reason moved European
philosophers and theologians, artists and social theorists, to conceive of
the essential kinship of philosophy and poetry), we shall trace the contours of this
identification of phenomenology as "philosophical science" to his mature
FORMA T: Seminar
19th and 20th Century thought.
enlightened French culture, religion, state and society as well as science,
science, morality and art were gradually separated from one another under exclusively
philosophy.
selection of Weil's essays on history, politics, literature, religion, science and
of France, but died in London aged 34. This course will read and discuss a
wrote brilliantly on an extraordinary range of topics. She fled the Nazi occupation
and was a fellow student with Jean-Paul Sartre and Simone de Beauvoir. A political activist, she
Simone Weil (1909-1943), a "genius" of the early 20th century, was a fellow
will also read texts by some of his interlocutors, both critical and sympathetic.
and "dialectical" reading in the principle of enlightened reason itself.
FORMA T: Seminar/tutorial
Philosophy.
CTMP 2012.03. CTMP 2011/12, ESMH 2401/03, ESMH 3401/03, ESMH 4001/03, PHIL 2201/03,
PHIL 2202/03, PHIL 2203/03, PHIL 2204/03, POLI 2401/03.
and only CTMP3513.03 for the 2011/12 academic year only
RESTRICTION: Restricted to students in their second year and above
CTMP 3130.03: The Thought of Michel Foucault.
Historians and philosopher Michel Foucault (1926-1984) was one of the most
important and controversial thinkers of the twentieth century. He developed an
anti-ideological historical method that was indebted both to Nietzsche's,
"genological" conception of history and to structuralist accounts of language
and culture. With major works on madness, the human sciences, crime
and punishment, and sexuality, Foucault has influenced a wide range of disciplines
from history, philosophy, and literature, to sociology, political science, and law.
His work has also profoundly shaped the fields of gender studies and queer theory.
This course will examine the evolution of Foucault's approach to history, as well
as his highly original ideas about the relationship between knowledge, power, and
the constitution of subjectivity. Considerable attention will be devoted to his work
on the history of sexuality. While our focus will be on Foucault's own writings, we
will also read texts by some of his interlocutors, both critical and sympathetic.
FORMA T: Seminar
CTMP 3135.03: Reconstructing Political Modernity.
This course will examine several interpretations of early modern philosophers by
20th-century authors who are original political thinkers in their own right. These
interpretations have involved as much reconstitution of early modern thought as
faithful scholarly exegesis of the original texts. This course will critically analyze
the radical transformations of modern texts that were undertaken in the making
of these works relevant to social and political questions centuries later.
FORMA T: Seminar
EXCLUSION: EMSP 2011.03/3011.03/4011.03 and HSTC 2011.03/3011.03/4011.03
for the 2011/12 academic year only.
CTMP 3190.03: The Thought of Simone Weil.
Simone Weil (1903-1943), a “genius” of the early 20th century, was a lifelong
student with Jean-Paul Sartre and Simone de Beauvoir. A political activist, she
taught philosophy, then worked for a year on an industrial assembly-line. She
wrote brilliantly on an extraordinary range of topics. She fled the Nazi occupation
of France, but died in London aged 34. This course will read and discuss a
selection of Weil's essays on history, politics, literature, religion, science and
philosophy.
FORMA T: Seminar/tutorial
CTMP 3192.03: The Thought of Ludwig Wittgenstein.
Ludwig Wittgenstein (1889-1951) is one of the most influential philosophers of the
20th century. His extraordinary influence is the result of his teaching
small groups of dedicated students. Published for the most part posthumously, his
writings, too, have made him a philosopher's philosopher. Nevertheless, his
influence has extended well beyond the questions about the foundations of logic
and language which preoccupied him. This course will explore some of
the broader implications of his work, touching on music, art and architecture, on
anthropology and psychology, and on ethics and religion, as well as on his central
contributions to the philosophy of language and mind.
CFMP 3201.03: Science and Religion: Contemporary Perspectives.

This course provides an introduction to the field of film theory and criticism. Students will be introduced to the tools of film analysis and will be asked to apply these tools to a variety of films. The course will focus on the following critical and theoretical methodologies: Classical Film Theory, Auteur Theory, Genre Theory, Semiotics, Psychoanalysis, Feminist Theory, Reception Theory, Star Studies, Critical Race Theory and Queer Theory.

CFMP 3304.03: Through Her Eyes: Women and the Documentary Tradition.

This course will examine the role of women in the field of documentary filmmaking. Women documentary makers have produced extensive bodies of work that challenge many societal assumptions about gender, class, race, the function of political power, sexuality and peace-war. They have worked at every level within the process as directors, cinematographers, editors, sound recordists, producers, writers and fund-raisers. A variety of documentaries made by women from diverse backgrounds will be screened and analyzed along with a close reading of selected critical texts. Students will identify the similarities and differences in subjects, themes, style, aesthetics, and approached to creation, production and distribution.

CFMP 3305.03: Modern Film and the Theory of the Gaze.

This course will examine recent approaches to the aesthetic appreciation of both contemporary and classical cinema. The course will provide an introduction to the field of film theory and criticism. Students will be introduced to the tools of film analysis and will be asked to apply these tools to a variety of films. The course will focus on the following critical and theoretical methodologies: Classical Film Theory, Auteur Theory, Genre Theory, Semiotics, Psychoanalysis, Feminist Theory, Reception Theory, Star Studies, Critical Race Theory and Queer Theory.

CFMP 3321.03: Representations of the Holocaust: Bearing Witness.

At the time when the Holocaust recedes into history, the imperative to “never forget” acquires new urgency. In this course, we focus on various modes of talking about this traumatic historical event. Can horror be accommodated in language? Is there a privileged genre that would reduce the Holocaust to suffering? These and other questions will arise from the examination of eye-witness accounts by camp survivors, excerpts from Holocaust films written in the ghetto, perpetrator testimonies, works by historians, and literary works. The course includes excerpts from films, documentaries, and other video-taped material. Guest speakers will be invited for lectures, recollection, and discussion.

CFMP 3322.03: Representations of the Holocaust : Remembrance.

Representations of the Holocaust: Bearing Witness is not required.

CFMP 3323.03: The Aesthetics of Environments.

This course will examine recent approaches to the aesthetic appreciation of both contemporary and classical cinema. The course will provide an introduction to the field of film theory and criticism. Students will be introduced to the tools of film analysis and will be asked to apply these tools to a variety of films. The course will focus on the following critical and theoretical methodologies: Classical Film Theory, Auteur Theory, Genre Theory, Semiotics, Psychoanalysis, Feminist Theory, Reception Theory, Star Studies, Critical Race Theory and Queer Theory.

CFMP 3324.03: Film Theory.

This course provides an introduction to the field of film theory and criticism. Students will be provided with the tools to interpret films using the following critical and theoretical methodologies: Classical Film Theory, Auteur Theory, Genre Theory, Semiotics, Psychoanalysis, Feminist Theory, Reception Theory, Star Studies, Critical Race Theory and Queer Theory.

CFMP 3325.00: Nature and History.

In this course, we will study texts which help us understand the role of nature in the era after the Enlightenment and consider how these ideas influenced, and were influenced by, developments in scientific thought. The seminar will consider how nature and history are related in idealism, historical materialism and the thinking of the evolutionists, and how this connection is rejected by Nietzsche, Freud and Foucault.

CFMP 3326.03: Film and Literature.

This course will provide an introduction to the field of film theory and criticism. Students will be provided with the tools to interpret films using the following critical and theoretical methodologies: Classical Film Theory, Auteur Theory, Genre Theory, Semiotics, Psychoanalysis, Feminist Theory, Reception Theory, Star Studies, Critical Race Theory and Queer Theory.

CFMP 3327.03: Feminism and Science.

This course will examine recent approaches to the aesthetic appreciation of both contemporary and classical cinema. The course will provide an introduction to the field of film theory and criticism. Students will be introduced to the tools of film analysis and will be asked to apply these tools to a variety of films. The course will focus on the following critical and theoretical methodologies: Classical Film Theory, Auteur Theory, Genre Theory, Semiotics, Psychoanalysis, Feminist Theory, Reception Theory, Star Studies, Critical Race Theory and Queer Theory.

CFMP 3328.03: The Aesthetics of Environments.

This course will examine recent approaches to the aesthetic appreciation of both contemporary and classical cinema. The course will provide an introduction to the field of film theory and criticism. Students will be introduced to the tools of film analysis and will be asked to apply these tools to a variety of films. The course will focus on the following critical and theoretical methodologies: Classical Film Theory, Auteur Theory, Genre Theory, Semiotics, Psychoanalysis, Feminist Theory, Reception Theory, Star Studies, Critical Race Theory and Queer Theory.

CFMP 3329.03: Science and Religion: Contemporary Perspectives.

This course will provide an introduction to the field of film theory and criticism. Students will be provided with the tools to interpret films using the following critical and theoretical methodologies: Classical Film Theory, Auteur Theory, Genre Theory, Semiotics, Psychoanalysis, Feminist Theory, Reception Theory, Star Studies, Critical Race Theory and Queer Theory.

CFMP 3330.03: Modern Film and the Theory of the Gaze.

This course will examine recent approaches to the aesthetic appreciation of both contemporary and classical cinema. The course will provide an introduction to the field of film theory and criticism. Students will be provided with the tools to interpret films using the following critical and theoretical methodologies: Classical Film Theory, Auteur Theory, Genre Theory, Semiotics, Psychoanalysis, Feminist Theory, Reception Theory, Star Studies, Critical Race Theory and Queer Theory.
at the current phenomenon of Holocaust denial, with emphasis on anti-Semitism and white supremacy movements in Canada. Finally, we consider the politics of Holocaust memory in comparative perspectives. The course includes excerpts from film, documents, and other video-taped material, and illustrated lectures on Holocaust art.

CTMP 3340.03: Home and Homelessness.

This course takes the current social problem of homelessness as a starting point for an exploration of the significance of definitions of home and homelessness in the contemporary world. Home is a place of comfort and belonging; it is a domestic setting, a sanctuary and a series of identifications which "place" and maintain individuals. Where I am at home, I feel content with myself. The notion of home is opposed to the legal definitions of the modern condition--a condition of displacement, estrangement, and uncertainty, for example. These definitions have been applied both to psychological conditions and to actual social phenomena of mass displacements, refugees, immigration, and exile. The social imaginary of many historically displaced groups centres around the return to or establishment of a homeland. This course will consider literary and artistic representations of "home," the phenomenology of "homelessness" and of its opposite, the uncertainty (unheimlichkeit), and the stakes that post-war philosophy has in the notion of rootedness, place, and dwelling.

FORMAT: Seminar

CTMP 3345.03: The Theory of the Gift.

Is it possible to give, freely, without expectation of return? That is, can generosity ever really exist? Or are we trapped in a world of exchange in which our actions constantly create some profit to ourselves, whether in this world or the next? The problem of the possibility of generosity and altruism is of central importance to current deliberations about ethics and economics. This seminar will read in two ways through the modern genealogy of the thinking about the gift, beginning with its foundation in anthropological studies of so-called "primitive" economies. It is of some interest that the modern concern with the gift appears in the guise of anthropological and religious studies in which the gift has again come to the fore. The seminar will read in two ways through the modern genealogy of the thinking of the gift, beginning with its foundation in anthropological studies of so-called "primitive" economies. It will begin with the literature of anthropologists and sociologists such as Mary Douglas and Marshall Sahlins, and will place special emphasis on the importance of the gift in the work of Jacques Derrida.

FORMAT: Seminar

CTMP 3350.03: Rewriting Gender.

Recent literature by women, both fiction and literary theory, has widely adopted strategies of re-reading and deconstruction in order to extend feminist views. These explorations have also allowed female authors to question the way in which women's subjectivity has been presented, interpreted, and segmented. This seminar will read in two ways through the modern genealogy of the thinking of the gift, beginning with its foundation in anthropological studies of so-called "primitive" economies. It is of some interest that the modern concern with the gift appears in the guise of anthropological and religious studies in which the gift has again come to the fore. The seminar will read in two ways through the modern genealogy of the thinking of the gift, beginning with its foundation in anthropological studies of so-called "primitive" economies. It will begin with the literature of anthropologists and sociologists such as Mary Douglas and Marshall Sahlins, and will place special emphasis on the importance of the gift in the work of Jacques Derrida.

FORMAT: Seminar

CTMP 3410.03: Studies in Contemporary Social and Political Thought in the 20th Century.

Topics vary each year.

NOTE: No more than two studies courses (one full credit) can be taken for credit towards the Contemporary Studies Program. Students can enrol only once in each course.

FORMAT: Seminar

PREREQUISITE: Students must complete at least two years of university study (minimum 10 full credits) prior to enrollment.

CTMP 3411.03: Studies in Contemporary Science and Technology.

Topics vary each year.

NOTE: No more than two studies courses (one full credit) can be taken for credit towards the Contemporary Studies Program. Students can enrol only once in each course.

FORMAT: Seminar

PREREQUISITE: Students must complete at least two years of university study (minimum 10 full credits) prior to enrollment.

CTMP 3415.03: Studies in Contemporary Aesthetic and Critical Theories.

Topics vary each year.

NOTE: No more than two studies courses (one full credit) can be taken for credit towards the Contemporary Studies Program. Students can enrol only once in each course.

FORMAT: Seminar

PREREQUISITE: Students must complete at least two years of university study (minimum 10 full credits) prior to enrollment.

CTMP 4010.03: Walter Benjamin's Materials.

Following the diversity of Benjamin's own interests--literature, philosophy, architecture--this course will explore the ways in which his texts can accommodate much-debated involvement with Nazism to try to understand the nature and impact of his "turn" from the "early" to the "late" Benjamin. This course will examine the lecture series in the context of Heidegger's other writings at this time and his "turn" from the "early" to the "late" Heidegger. This course will begin with the literary explorations of Dostoevsky and Nietzsche, and then turn to the thought of Nietzsche as the most complex expression of European nihilism. The course will conclude by considering the twentieth-century's most important commentaries on nihilism, Martin Heidegger, in particular, the course will consider Martin Heidegger's set of lectures from the late 1950s that were published as Nietzsche. This set of lectures and the intellectual analyses of Nietzsche's account of European nihilism formed, according to Heidegger's own recounting, a crucial transition in his own thought, the famous "turn" from the "early" to the "late" Heidegger. This course will examine the lecture series in the context of Heidegger's other writings at this time and his much-debated involvement with Nazism to try to understand the nature and impact of his "turn." In all of this the course will be exploring the connections between both a cultural and philosophical understanding of European nihilism and its social and political implications.

FORMAT: Seminar

EXCLUSION: CTMP 4101 for the 2004/2005 academic year only

CTMP 4124.03: Hannah Arendt: Terror, Politics, Thought.

This course we will be examining the trajectory of Hannah Arendt's long path of thinking: from her early political writings (on the state of Israel, on totalitarianism), to the more theoretically ambitious writings of the 1950s and 1960s on action, power, and the question of political space, to her later work on the life of the soul (on thinking, willing, and judging). We will attempt to understand how Arendt's overarching "love of the world" informed her thought at every stage of its development, giving rise to a powerful critique of liberal democracy and preparing the groundwork for a new "post-totalitarian" thinking of the political.

FORMAT: Seminar

EXCLUSION: CTMP 4415.03 in the 2009/2010 academic year only.

RESTRICTION: Restricted to students in their 2nd year and above.

CTMP 4125.03: Home and Homelessness.

This course will take a critical look at the current phenomenon of homelessness, with emphasis on anti-Semitism and white supremacy movements in Canada. Finally, we consider the politics of Holocaust memory in comparative perspectives. The course includes excerpts from film, documents, and other video-taped material, and illustrated lectures on Holocaust art.

CTMP 4000X/Y.06: The Deconstruction of the Tradition.

This course focuses on twentieth-century thinkers and writers who have questioned fundamental concepts of Western philosophy such as identity, selfhood, representation, truth, and origin. What they all have in common is an understanding of life in the world in the 20th Century as dominated by a totalizing model of thinking in favor of pluralistic discourses that can accommodate radical heterogeneity. The recurrent themes of the course are: relations between philosophy and literature, interactions between the philosophical domain of ethics and aesthetics, and visibility for deconstruction for political and cultural praxis. The readings include theoretical texts (Benjamin, Heidegger, Derrida, Irigaray, bell hooks, Butler, Lyotard, Levinas, Agamben, Nancy) and some works of fiction (Kafka, Borges, Camus).

NOTE: Credit only be given for one of the courses X or Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture/tutorial

CTMP 4105.03: European Nihilism.

In the latter half of the nineteenth century, a number of European thinkers and writers came to share a profound loss of meaning and significance at work in their culture. The term that was coined to describe this experience was "nihilism." The purpose of this course is to explore the thought of those who gave expression to this new phenomenon. We will begin with the literary explorations of Dostoevsky and Nietzsche, and then turn to the thought of Nietzsche as the most complex expression of European nihilism. The course will conclude by considering the twentieth-century's most important commentaries on nihilism, Martin Heidegger, in particular, the course will consider Martin Heidegger's set of lectures from the late 1950s that were published as Nietzsche. This set of lectures and the intellectual analyses of Nietzsche's account of European nihilism formed, according to Heidegger's own recounting, a crucial transition in his own thought, the famous "turn" from the "early" to the "late" Heidegger. This course will examine the lecture series in the context of Heidegger's other writings at this time and his much-debated involvement with Nazism to try to understand the nature and impact of his "turn." In all of this the course will be exploring the connections between both a cultural and philosophical understanding of European nihilism and its social and political implications.

FORMAT: Seminar

EXCLUSION: CTMP 4101 for the 2004/2005 academic year only

CTMP 4043.03: Seminar

CTMP 4051.03: Seminar

CTMP 4126.03: Kafka, Schollem, Benjamin: On Law and Crisis in 20th Century Jewish Thought.

In this course, we will attempt to understand how Arendt's overarching "love of the world" informed her thought at every stage of its development, giving rise to a powerful critique of liberal democracy and preparing the groundwork for a new "post-totalitarian" thinking of the political.

FORMAT: Seminar

EXCLUSION: CTMP 4415.03 in the 2009/2010 academic year only.

RESTRICTION: Restricted to students in their 2nd year and above.

This course will be examining the trajectory of Hannah Arendt's long path of thinking:

1. From her early political writings (on the state of Israel, on totalitarianism), to the more theoretically ambitious writings of the 1950s and 1960s on action, power, and the question of political space, to her later work on the life of the soul (on thinking, willing, and judging).

2. We will attempt to understand how Arendt's overarching "love of the world" informed her thought at every stage of its development, giving rise to a powerful critique of liberal democracy and preparing the groundwork for a new "post-totalitarian" thinking of the political.

3. The recurrent themes of the course are: relations between philosophy and literature, interactions between the philosophical domain of ethics and aesthetics, and visibility for deconstruction for political and cultural praxis. The readings include theoretical texts (Benjamin, Heidegger, Derrida, Irigaray, bell hooks, Butler, Lyotard, Levinas, Agamben, Nancy) and some works of fiction (Kafka, Borges, Camus).

4. NOTE: Credit only be given for one of the courses X or Y are completed in consecutive terms and partial credit cannot be given for a single term.
the social symbolic? The modern skepticism about consciousness and conscious

Is psychoanalysis a medical practice, a method of interpretation, or an account of

Psychoanalysis.

CTMP 4300.03: Technologies of Philosophy I: From Techie to Technology.

What does it mean to live in a "technological society"? In a certain sense, technology forms the very ground of what it means to be "modern." We moderns are technological beings. This course will explore the history, structure, and associated problems of our coming to be technological, beginning with technical and instrumental reasoning of Enlightenment and industrial ideology. Post-Enlightenment critiques polarizing around the place of "machine" and alienation in Heidegger's work, and together with "lifeworld" in Martin Heidegger, will then be examined, leading up to the present state of technological discourse. In this course, we shall trace the emergence of the debate by examining the actual historical evolution of technology. Weekly lectures will be devoted to presenting a social and historical background to the development of modern technologies. Student-led seminars will focus on the reading of primary texts in the field.

FORMAT: Seminar/lecture

CTMP 4201.03: Philosophies of Technology II: Questions Concerning Technology.

This topical seminar course will explore in detail the implications of present/contemporary debates concerning the meaning and place of technology. What do we mean by technology? Can there be a philosophy of technology? What are the political and cultural ramifications of the production of technology? Topics will include technological determinism in history, feminist critiques, technology and development, the meaning of expertise, technology, and the "life-world," social-construction vs. actor-network theory, Donna Haraway's concept of cyborg culture and the "modern technological sublime". The course will be introduced in seminar format with particular emphasis placed on the elucidation of historical and contemporary case-studies. Whenever possible, guest lecturers from the "real world" of technology will be invited to participate in class.

FORMAT: Seminar/lecture

CTMP 4301.03: Freud, Lacan and the Critique of Psychoanalysis.

Is psychoanalysis a medical practice, a method of interpretation, or an account of the social symbolic? The modern skepticism about consciousness and conscious

life is most thoroughly social in psychodynamic thought as first developed by Freud and pursued in the work of Jacques Lacan. This course will consider the question of the modern psyche, the nature of symbolic practices in art and literature, and the construction of ideological economies in society. The central question of the course will concern the way in which the individual subject is understood in symbolic practices. The recent attacks on Freud and Foucauldian methodologies will also be considered.

FORMAT: Seminar

CTMP 4302.03: Recent French Feminist Theory.

This course will concentrate on some of feminism's most challenging voices, though it has not emerged from any of the formal feminist movements, in the work of Lyotard and Derrida. Topics and concepts for discussion will include being-in-the-world, the nature of consciousness, the lived body, temporality, the priority of otherness and hermeneutics.

FORMAT: Seminar

CTMP 4150.03: Derrida and Deconstruction.

This course studies Derrida's thought intertextually—from the development of deconstruction, through his innovative exploration of works of art and literature, to his politically reflected late writings on the gift, forgiveness, and hospitality.

FORMAT: Seminar

CTMP 4200.03: Philosophies of Technology II: From Techie to Technology.

What does it mean to live in a "technological society"? In a certain sense, technology forms the very ground of what it means to be "modern." We moderns are technological beings. This course will explore the history, structure, and associated problems of our coming to be technological, beginning with technical and instrumental reasoning of Enlightenment and industrial ideology. Post-Enlightenment critiques polarizing around the place of "machine" and alienation in Heidegger's work, and together with "lifeworld" in Martin Heidegger, will then be examined, leading up to the present state of technological discourse. In this course, we shall trace the emergence of the debate by examining the actual historical evolution of technology. Weekly lectures will be devoted to presenting a social and historical background to the development of modern technologies. Student-led seminars will focus on the reading of primary texts in the field.

FORMAT: Seminar/lecture

CTMP 4201.03: Philosophies of Technology II: Questions Concerning Technology.

This topical seminar course will explore in detail the implications of present/contemporary debates concerning the meaning and place of technology. What do we mean by technology? Can there be a philosophy of technology? What are the political and cultural ramifications of the production of technology? Topics will include technological determinism in history, feminist critiques, technology and development, the meaning of expertise, technology, and the "life-world," social-construction vs. actor-network theory, Donna Haraway's concept of cyborg culture and the "modern technological sublime". The course will be introduced in seminar format with particular emphasis placed on the elucidation of historical and contemporary case-studies. Whenever possible, guest lecturers from the "real world" of technology will be invited to participate in class.

FORMAT: Seminar/lecture

CTMP 4301.03: Freud, Lacan and the Critique of Psychoanalysis.

Is psychoanalysis a medical practice, a method of interpretation, or an account of the social symbolic? The modern skepticism about consciousness and conscious

life is most thoroughly social in psychodynamic thought as first developed by Freud and pursued in the work of Jacques Lacan. This course will consider the question of the modern psyche, the nature of symbolic practices in art and literature, and the construction of ideological economies in society. The central question of the course will concern the way in which the individual subject is understood in symbolic practices. The recent attacks on Freud and Foucauldian methodologies will also be considered.

FORMAT: Seminar

CTMP 4302.03: Recent French Feminist Theory.

This course will concentrate on some of feminism's most challenging voices, though it has not emerged from any of the formal feminist movements, in the work of Lyotard and Derrida. Topics and concepts for discussion will include being-in-the-world, the nature of consciousness, the lived body, temporality, the priority of otherness and hermeneutics.

FORMAT: Seminar

CTMP 4150.03: Derrida and Deconstruction.

This course studies Derrida's thought intertextually—from the development of deconstruction, through his innovative exploration of works of art and literature, to his politically reflected late writings on the gift, forgiveness, and hospitality.

FORMAT: Seminar

CTMP 4200.03: Philosophies of Technology II: From Techie to Technology.

What does it mean to live in a "technological society"? In a certain sense, technology forms the very ground of what it means to be "modern." We moderns are technological beings. This course will explore the history, structure, and associated problems of our coming to be technological, beginning with technical and instrumental reasoning of Enlightenment and industrial ideology. Post-Enlightenment critiques polarizing around the place of "machine" and alienation in Heidegger's work, and together with "lifeworld" in Martin Heidegger, will then be examined, leading up to the present state of technological discourse. In this course, we shall trace the emergence of the debate by examining the actual historical evolution of technology. Weekly lectures will be devoted to presenting a social and historical background to the development of modern technologies. Student-led seminars will focus on the reading of primary texts in the field.

FORMAT: Seminar/lecture

CTMP 4201.03: Philosophies of Technology II: Questions Concerning Technology.

This topical seminar course will explore in detail the implications of present/contemporary debates concerning the meaning and place of technology. What do we mean by technology? Can there be a philosophy of technology? What are the political and cultural ramifications of the production of technology? Topics will include technological determinism in history, feminist critiques, technology and development, the meaning of expertise, technology, and the "life-world," social-construction vs. actor-network theory, Donna Haraway's concept of cyborg culture and the "modern technological sublime". The course will be introduced in seminar format with particular emphasis placed on the elucidation of historical and contemporary case-studies. Whenever possible, guest lecturers from the "real world" of technology will be invited to participate in class.

FORMAT: Seminar/lecture

CTMP 4301.03: Freud, Lacan and the Critique of Psychoanalysis.

Is psychoanalysis a medical practice, a method of interpretation, or an account of the social symbolic? The modern skepticism about consciousness and conscious

life is most thoroughly social in psychodynamic thought as first developed by Freud and pursued in the work of Jacques Lacan. This course will consider the question of the modern psyche, the nature of symbolic practices in art and literature, and the construction of ideological economies in society. The central question of the course will concern the way in which the individual subject is understood in symbolic practices. The recent attacks on Freud and Foucauldian methodologies will also be considered.

FORMAT: Seminar

CTMP 4302.03: Recent French Feminist Theory.

This course will concentrate on some of feminism's most challenging voices, though it has not emerged from any of the formal feminist movements, in the work of Lyotard and Derrida. Topics and concepts for discussion will include being-in-the-world, the nature of consciousness, the lived body, temporality, the priority of otherness and hermeneutics.

FORMAT: Seminar

CTMP 4150.03: Derrida and Deconstruction.

This course studies Derrida's thought intertextually—from the development of deconstruction, through his innovative exploration of works of art and literature, to his politically reflected late writings on the gift, forgiveness, and hospitality.

FORMAT: Seminar

CTMP 4200.03: Philosophies of Technology II: From Techie to Technology.

What does it mean to live in a "technological society"? In a certain sense, technology forms the very ground of what it means to be "modern." We moderns are technological beings. This course will explore the history, structure, and associated problems of our coming to be technological, beginning with technical and instrumental reasoning of Enlightenment and industrial ideology. Post-Enlightenment critiques polarizing around the place of "machine" and alienation in Heidegger's work, and together with "lifeworld" in Martin Heidegger, will then be examined, leading up to the present state of technological discourse. In this course, we shall trace the emergence of the debate by examining the actual historical evolution of technology. Weekly lectures will be devoted to presenting a social and historical background to the development of modern technologies. Student-led seminars will focus on the reading of primary texts in the field.

FORMAT: Seminar/lecture

CTMP 4201.03: Philosophies of Technology II: Questions Concerning Technology.

This topical seminar course will explore in detail the implications of present/contemporary debates concerning the meaning and place of technology. What do we mean by technology? Can there be a philosophy of technology? What are the political and cultural ramifications of the production of technology? Topics will include technological determinism in history, feminist critiques, technology and development, the meaning of expertise, technology, and the "life-world," social-construction vs. actor-network theory, Donna Haraway's concept of cyborg culture and the "modern technological sublime". The course will be introduced in seminar format with particular emphasis placed on the elucidation of historical and contemporary case-studies. Whenever possible, guest lecturers from the "real world" of technology will be invited to participate in class.

FORMAT: Seminar/lecture

CTMP 4301.03: Freud, Lacan and the Critique of Psychoanalysis.

Is psychoanalysis a medical practice, a method of interpretation, or an account of the social symbolic? The modern skepticism about consciousness and conscious

PREREQUISITE: Students must complete at least 2 years of university study (minimum 6 full credits) prior to enrollment.

**CTMP 4510.03/4511.03/4515X/Y.06: Independent Readings in Contemporary Studies.**

In a reading course the student is assigned to a member of staff for regular meetings to discuss readings in a selected area. Papers and research projects are expected.

**Format:** Individual instruction

**Prerequisite:** Honours registration in Contemporary Studies and permission of the instructor and director.

**Please note:** Students may take an Independent Reading course only when they reach their third or fourth year. Only one full course or the equivalent may be taken in a year. No more than two full courses of this type may be taken during the course of study.

**Costume Studies**

Website: [http://www.theatre.dal.ca](http://www.theatre.dal.ca)

See Theatre, Faculty of Fine Arts, page 203.
I. Early Modern Studies Program

What is the meaning of modernity? What are its origins? Is modernity to be embraced as a source of freedom or rejected as destructive of both nature and humanity? These provocative and challenging questions are addressed in the Early Modern Studies Program (EMSP), which explores the nature of modernity through a study of its origins and development in European culture from the 16th to early 19th centuries, a time of spectacular upheaval.

The joint Dalhousie/King’s Early Modern Studies Program is based on the general approach of the University of Toronto’s Program in Early Modern Studies. The program brings together established departmental offerings in the arts and social sciences at Dalhousie and joins these with Early Modern Studies courses - including a required ‘core’ course - to form a comprehensive degree program. This program is designed so that EMSP students are encouraged to acquire competence in languages through appropriate courses which are relevant to their degree, interests, and future plans.

EMSP students will take an active role in organizing certain events each year, including lectures, debates, and exhibitions.

II. Degree Programs

A. Combined Honours

The departmental offerings within EMSP at Dalhousie include the other honours subject and a number of possible electives. The other honours subject must be selected from the following list of Dalhousie departmental and programs: Canadian Studies, Classics, Creative Writing, English, French, Gender and Women’s Studies, German, History, International Development Studies, Italian Studies, Music, Philosophy, Political Science, Religious Studies, Sociology, and an interdisciplinary course in Anglophone, Hispanic or Slavic Studies. The departmental offerings within EMSP at King’s include the other honours subject or toward one of two minors. EMSP courses are designed so that students who are eligible to take an honours degree should apply to the EMSP and the other department or program concerned as early as possible. All students must meet the requirements of the Faculty of Arts and Sciences as detailed in the Degree Requirement section of this calendar. Because it is an honours program, the quality of work required in it is higher than that required in a 15 credit minor or 20 credit major program.

Applications for admission must be made to the Dalhousie department concerned and to the Early Modern Studies office at King’s on forms available from the Registrar at either Dalhousie or King’s. Students should apply to the program and seek advice on course selection before registering for the second year. If this is not done, it may be necessary to make up some work not previously taken. For each individual student, the entire degree program, including elective courses, is subject to supervision and approval by the Dalhousie department concerned and by a member of the Early Modern Studies teaching staff.

All EMSP students are encouraged to acquire competence in languages through appropriate courses which are relevant to their degree, interests, and future plans.

1. Completion of either the Foundation Year Program (either the three or the four credit version) or at least two appropriate first year full credits at Dalhousie which involve the study of pre-nineteenth century ideas or institutions (that is, Classics, CLAS 1000X/Y.06, CLAS 1001X/Y.06, CLAS 1500X/Y.06, CLAS 1501X/Y.06; History, HIST 1701.03, HIST 1702.03; Music, MUSC 1001X/Y.06, MUSC 1350.03, MUSC 1351.03; Philosophy, PHIL 1000X/Y.06, PHIL 1001X/Y.06; Religious Studies, RELS 1001X/03; Sociology and Social Anthropology, SOOA 1000X/Y.06, SOOA 1001X/03, SOOA 1200X/03; Spanish, SPAH 1001.03, SPAH 1002.03, SPAH 1100X/06; and Mathematics, MATH 1001.03 and MATH 1002.03).

2. A minimum of 11 and a maximum of 14 credits beyond the 1000 level in the two honours subjects, but no more than eight nor fewer than five full credits being in either of them.

3. The three ‘core’ courses in Early Modern Studies: EMSP 2000.06, EMSP 3000.06, EMSP 4000.06.

4. An honours qualifying examination (see Degree Requirement: BA, BSc, Combined Honours (4 year)). Early Modern Studies students may choose to acquire this additional grade in either honours subject. In the Early Modern Studies Program, completion of the Honours Seminar (EMSP 4500.06) fulfills the requirement of the honours qualifying examination; or, with the approval of the director, an honours thesis (in conjunction with EMSP 4505.06) may also serve to fulfill the requirement of the honours qualifying examination.

Students will be eligible to take an ‘Independent Reading’ course only when they reach their third or fourth year. There will be no options for this course, but only one full credit or the equivalent may be taken in any year. No more than two full credits of this type may be taken during an EMSP degree. The permission of a number of the teaching staff and the Director of the program is necessary in order to take one of these courses, and their availability is strictly limited.
A course offered by the EMSP that is also cross-listed to another program or
department must be taken as an EMSP course if it is to count towards the
fulfilment of the normal requirements of no fewer than four credits in each of
the two honour subjects in a combined honours degree in EMSP (see section 2
above).

B. Minor in Early Modern Studies
See Minors in the College of Arts and Science section of this calendar (page 129).

III. Courses Offered at the University of
King's College
All courses in the Early Modern Studies Program require students to have
completed at least one year of university study (minimum five credits) prior to
enrolment. Note: Not all courses are offered every year. Please consult the current
timetable.

Central to what distinguishes modernity from the ages preceding it was the
development of a new conception of self. This course traces the history of the
modern self in its cultural expressions from its beginnings in the Renaissance.
The developing and often diverse explorations of the self in the Early Modern period
will be considered through an examination of the philosophical and literary texts
as well as other aesthetic phenomena. To help provide a sense of what the modern
self implies, continual reference will be made to its relation to social and
economic developments, to a changing perception of gender, to the encounter of
Europe with the non-European world, and to institutional authority, particularly
governmental and ecclesial.
NOTE: Credit can only be given for this course if X and Y are completed in
consecutive terms and partial credit cannot be given for a single term.

PREREQUISITE: Either King's Foundation Year Programme or two first-year
credits at Dalhousie which involve the study of pre-19th century ideas or
institutions

EMSP 2011.03/EMSP 3011.03/EMSP 4011.03: The
Lecture Series.
In some years a lecture series course is offered. Students are allowed to take up to
three such courses, one for each year of upper-level study. Each course will consist
of set bi-weekly evening lectures given by specialists from Atlantic Canada and
beyond and a weekly two-hour seminar. The lectures will offer students
reflections on a number of contemporary issues and themes. Each year a different
theme will be explored.
FORMAT: Seminar/evening lectures
EXCLUSION: CTMP 2010.06, CTMP 3010.06, CTMP 4010.06

EMSP 2210.03: Deconstruction in the Renaissance:
Montaigne's Essays and their legacy.
In this course, we will read Montaigne's Essays at length. We will consider his
relationship to the Ancients, Renaissance humanism, skepticism and how his thinking
evolves throughout the long apprenticeship of the Essays. We will also look at some
of the history of Montaigne's reception by readers such as Shakespeare.

FORMAT: Seminar

EMSP 2220.03: The Voice of Satire: Rabelais, Cervantes,
Voltaire, Satire.
This course will cover several aspects of Early Modern Satire, ranging from
Cervantes' Don Quixote, to Rabelais' Gargantua and Pantagruel, to scathing works
from 1750-1800. This course will consider the important transformation of
satire in the Early Modern period. This course will consider the important transformation
of satire in the Early Modern period. This course will consider the important transformation
of satire in the Early Modern period.

PREREQUISITE: Students must complete 30 credit-hours before registering in
this course

EMSP 2230.03: Picture and Poetry in Early Modern
Culture.
Modern early modern artists and thinkers were fond of the Latin phrase, "sit picturae, 
which means, "as in painting, so in poetry." But Ronsard for example argued that
"poetry and picture are arts of a like nature, and both be busy about matters.
The object is here will be to test the vitality of such a claim with reference to early
modern visual art and literature. Are poets and painters engaged in the same field
of representation? Do they adopt parallel strategies of representation? Do they
interpret and organize social energies in similar ways?

FORMAT: Seminar

EMSP 2240.03: Themes in Early Modern Science,
Metaphysics and Epistemology.
This course covers the period from Descartes through Kant and is structured
around a study of themes in science, epistemology and metaphysics as they
have evolved in this period. Although the themes to be covered may vary somewhat,
within the philosophical and the main ones will be a selection from the following:
- theories of representation, theories of perception, theories of concepts and abstract
- ideas, theories of knowledge and the issue of scepticism (proofs of God and the
- external world), metaphysics and ontology, causality, and doctrines of logic and
- method. What makes the Early Modern period so intellectually fascinating is that
- science, empirical studies and a priori studies, are intertwined. We
- shall look at some points of the controversies that ensued, especially in the area
- of cognitive science, especially in Descartes, but also including physics and
- mathematics, and the contributions of other philosophers of the period.
- The course starts from the premise that the ideas of these philosophers be taken
- seriously as contenders for philosophical truth. Accordingly we will use the
- methods of analytic philosophy, both conceptual analysis and argument
- reconstruction, to bring these theories into the most favourable light, then use
- whatever methods are available to us to critically assess them. The amount
- of reading material will not be large but what there is will be the subject of close
- study. Written assignments, papers, class participation and term tests will be the
- method of evaluation.

FORMAT: Seminar

EMSP 2250.03: The Myth of Modernity in Goethe's
Faust.
The Faust myth can be described as the myth of modernity itself: The idea of
human self-realization and progress are under debate in the story of the German
scho- ler Dr. Faustus who in his pact with the devil transgresses the boundaries that
nature, religion and society imposed on mankind. Unquestionably the most
famous representation of this modern myth is Goethe's Faust. Written over a
period of sixty years (1772-1832), Goethe's Faust breaks the fears of the
original myth to portray the central ambiguities and controversies presented by
the modern age. His Faust is the story of modern man at large, successful,
egotistical, torn, alienated, driven, in search of truth and totality, a man who in the
course of his life becomes spectacularly guilty, and in the end is spectacularly (and
controversially) redeemed. Faust's journey through the world traces major
developments of the Western world from the sixteenth to the early nineteenth
centuries, developments that still shape today's world.

FORMAT: Seminar

EMSP 2260.03: The Philosophes, the Encyclopédie
and Enlightenment Movement.
This course explores the range, depth and commitment of the work of several
leading figures of the eighteenth-century intellectual movement that came to be
known as the Enlightenment. The course will treat the full range of the
political, social, moral and religious ideas, theories of knowledge and the issue of
scepticism (proofs of God and the external world), metaphysics and ontology, causality,
and doctrines of logic and method. What makes the eighteenth-century so intellectually
fascinating is that science, empirical studies and a priori studies, are intertwined. We
shall look at some points of the controversies that ensued, especially in the area of
cognitive science, especially in Kant, but also including physics and mathematics,
and the contributions of other philosophers of the period. The

FORMAT: Seminar

EMSP 2270.03: Endless Romance.
The great medieval genre of romance both ended and metamorphosed in the
Early Modern period. This course will consider the important transformation
of the period by concentrating on two main texts: Spenser's Don Quixote
(Rosen, and Cervantes' Don Quixote). This course will begin by looking at a few
paradigmatic late medieval romances of the fifteenth century, including portions
of Sir Thomas Malory's Le Morte D'Arthur, and the Spanish romance of Mantuano,
Tirant lo blanc. The main texts will then be considered as examples of the
extraordinary reception of the genre, as continuation, elaboration and
adaptation. The course will cover the full scope of the range of texts from
the sixteenth to the eighteenth centuries, in the case of Cervantes, Central themes such as
plot, setting, and style will be considered, though a critical method of examining
the history of meaning of these texts is also required. This course will
There will be a number of readings and talks by historians of literature, Fyte,
Bakhtin, Parkinson. In conclusion, we will briefly consider much later
manifestations of romance, the work of the romantic poets.

FORMAT: Seminar

EMSP 2280.03: The Enlightenment, the
Encyclopédie and Enlightenment Movement.
This course explores the range, depth and commitment of the work of several
leading figures of the eighteenth-century intellectual movement that came to be
known as the Enlightenment. The course will treat the full range of the
transformations of the self in the Early Modern period and the arts of the
romantic movement in the Early Modern period. This course will consider the important transformation
of the period by concentrating on two main texts: Spenser's Don Quixote
(Rosen, and Cervantes' Don Quixote). This course will begin by looking at a few
paradigmatic late medieval romances of the fifteenth century, including portions
of Sir Thomas Malory's Le Morte D'Arthur, and the Spanish romance of Mantuano,
Tirant lo blanc. The main texts will then be considered as examples of the
extraordinary reception of the genre, as continuation, elaboration and
adaptation. The course will cover the full scope of the range of texts from
the sixteenth to the eighteenth centuries, in the case of Cervantes, Central themes such as
plot, setting, and style will be considered, though a critical method of examining
the history of meaning of these texts is also required. This course will
There will be a number of readings and talks by historians of literature, Fyte,
Bakhtin, Parkinson. In conclusion, we will briefly consider much later
manifestations of romance, the work of the romantic poets.

FORMAT: Seminar
EMSP 2280.03: Friedrich Schiller's Historical Drama. 
Feudalism's five historical dramas range over Early Modern Europe from the Hundred Years War to the Thirty Years War, and find settings in medieval Switzerland and France, as well as Counter-Reformation Spain and Elizabethan England. These five plays will be analyzed according to lyrical, theatrical, historical and aesthetic criteria.
FORMAT: Seminar 
CROSS-LISTING: GERM 2280.03

EMSP 2290.03: German Romanticism: From Goethe to Hegel. 
Romanticism begins by overturning conventional literary rules and attitudes. It denounces asceticism towards received religious doctrine and practice. Genuine feeling and political liberation are enhanced by attention to classical antiquity and an emphasis on individuality, especially consciousness against the modern, from Goethe to Hegel. Romanticism manages to eclipse almost everything else.
FORMAT: Seminar 
CROSS-LISTING: GERM 2290.03

EMSP 2310.03: Women and Gender in Early Modern Science. 
This course will explore the roles of women, and questions about women's nature, in the development of Early Modern science. The course will consider several interrelated aspects of scientific culture in the sixteenth, seventeenth, and eighteenth centuries: first, we will look at the place of women in the scientific institutions of the time. Although women were, for the most part, excluded from universities and scientific academies, some women were able to do scientific work through their participation in salons and craft guilds. The second part of the course will look at the contributions of some particular women to the fields of physics, astronomy, botany, and medicine. We will then examine how science interpreted sex and gender. We will pay special attention to the biological sciences and their treatments of sex differences, conception, and generation. We will consider how these biological theories were influenced by, and at the same time used to uphold, various political and social structures. Finally, the course will explore the ways in which gender and nature were portrayed in the broader cultural context. We will, for example, discuss the ways in which women were depicted as scientific and as symbols of science in art and literature.
FORMAT: Lecture/seminar 
CROSS-LISTING: GWS 2310.03, HIST 2310.03

EMSP 2313.03: The Vampire: Modernity and the Undead. 
Since the emergence of vampire stories in the late sixteenth century, the vampire has served as a complex symbol for forces that defy or challenge modernity. This course will examine the figure of the vampire as it appears in folklore, philosophy, fiction, poetry, film, and television. Throughout the course we will consider the works in their historical and cultural context, considering what changing ideas of the vampire can tell us about early modern and contemporary views of death, morality, national identity, sexuality, and gender.
FORMAT: Seminar 
CROSS-LISTING: CTMP 2313.03

EMSP 2320.03: Witchcraft in Early Modern Europe. 
The period of European history from 1500 to 1800 saw the rise of modern science and philosophy. It was also a period in which thousands of witch trials and executions were carried out. This course will seek to understand how these seemingly contradictory developments could have occurred simultaneously. The course will examine changing conceptions of the witch and witchcraft in their historical, intellectual, cultural, religious, and political contexts. Questions that will be addressed include: How did the Renaissance interest in magic influence the Early Modern understanding of witchcraft? What impact did concerns about popular religion have on the witch trials? What continued evidence that someone was a witch? What did Early Modern scientists think about witchcraft? The course will pay special attention to Early Modern accounts of gender and sexuality and their influence on the witch-hunts and witch trials.
FORMAT: Lecture tutorials 
CROSS-LISTING: GWS 2320.03, RELS 2420.03

EMSP 2330.03: Nature Imagined: Literature and Science in Early Modern Europe. 
In 1500, literate Europeans lived in a bounded, geocentric universe. By 1800, the sun had replaced the earth at the center of a limited planetary system stranded in infinite space. These changes prompted Early Modern philosophers, scientists and artists to consider the possibility that the universe might contain a plurality of worlds. This course will explore the ways in which the "plurality" theme was developed in some of the earliest works of science fiction. We will consider this theme as it appears in stories of intergalactic voyages, utopian societies, and encounters with extraterrestrial beings, paying special attention to the ways in which Early Modern writers used these tales to speculate on philosophical, political, and scientific issues.
FORMAT: Lecture/tutorials 
CROSS-LISTING: GWS 2330.03
EXCLUSION: EMSP 2330.03

EMSP 2340.03: The Origins of Science Fiction in Early Modern Europe.
In 1500, Europe was divided in a bounded, geocentric universe. By 1800, the sun had replaced the earth at the center of a limited planetary system stranded in infinite space. These changes prompted Early Modern philosophers, scientists and artists to consider the possibility that the universe might contain a plurality of worlds. This course will explore the ways in which the "plurality" theme was developed in some of the earliest works of science fiction. We will consider this theme as it appears in stories of intergalactic voyages, utopian societies, and encounters with extraterrestrial beings, paying special attention to the ways in which Early Modern writers used these tales to speculate on philosophical, political, and scientific issues.
FORMAT: Lecture/seminar 
EXCLUSION: EMSP 2340.03

EMSP 2350.03: The Body in Early Modern Europe. 
The course will explore how the emergence of the modern self intersected with changing conceptions of the body. We will explore such topics as the rise of Renaissance anatomy, Early Modern perceptions of gender, race, and sexual difference; new explanations of madness and melancholy; monstrous and demonic bodies; representations of the diseased body, and the emergence of the modern ideal of the disciplined body.
FORMAT: Lecture/tutorial 

EMSP 2360.03: Magic, Heresy and Hermeticism: Occult Mentalities in the Scientific Revolution. 
The "Scientific Revolution" is ordinarily construed as the triumph of reason over superstition, of science over oracy. This course argues that the rhetoric of "Enlightenment" conceals a deep continuity between modern science and the occult traditions of the Middle Ages and the Renaissance. The prototypical of the experimental scientist is the Faustian mage. We investigate the role of Hermeticism, magic, and the occult in the scientific revolution and the persistence of these ancient currents in later movements, from German Naturphilosophie to Jungian psychology.
FORMAT: Lecture/tutorial 
CROSS-LISTING: HIST 2360.03, HIST 2990.03

EMSP 2410.03: Imagining the Other: The Portrait of the Non-European World in Early Modern Culture. 
Europeans' encounter with non-European cultures in the early modern period shaped national consciousness, political power, and European self-understanding. Confrontation with non-European societies reinforced hegemonic, reflective, and self-critical aspects of European culture. The course analyzes how writers and artists implicitly engaged in clarifying and criticizing European identity as they came to terms with non-Europeans. The texts and images derive from Portuguese, Italian, Spanish, English, French, and Dutch sources from the late middle ages to the end of the eighteenth century. The contexts include Southeast Asia, India, Africa, North and South America, Polynesia, and purely imaginary settings.
FORMAT: Colloquium 

EMSP 2420.03: Virtue, Vice, and the Commercial Society in Early Modern Literature. 
An important development in Early Modern Europe is the emergence of the commercial society in the seventeenth and eighteenth centuries. The increasing power of the state, the rising middle class, and growing trade within and without Europe were accompanied by significant changes in religious, social, and political thought. The course will consider literary works by authors who grappled with the moral implications of the growth of commercial society in Europe, particularly in England at the beginning of the eighteenth century. The purpose of the course is to explore these complex changes in morality and society through the close examination of texts by authors such as Daniel Defoe, Bernard Mandeville, and Jonathan Swift. These authors sought to understand and to some extent criticize the notion of a society defined by the pursuit of economic success. Furthermore, they employed literary genres such as travel literature and satire to
explore the changing conceptions of virtue and vice in Europe, thus presenting
often ambiguous treatments of commercial society. The theoretical justifications
of commercial society as the thought of Hobbes and Locke will first be considered
for providing a framework for discussion. As well, virtue will be made transparent to
other philosophical and artistic works of the period. Comparisons between the
texts will be emphasized in written assignments and seminar presentations.
FORMAT: Lecture/seminar
EMSP 2430.03: The Pursuit of Happiness in Early
Modern Culture.
A universal preoccupation in early modern European culture, particularly in the
eighteenth century, was that of the measurement of happiness in one's private life and
in society in general. Happiness was seen as the highest good by some thinkers -
as arguably reflected, on a political level, in the American constitution - while
others argued against the identification of happiness with goodness. This course
will examine various literary and philosophical texts in which the pursuit of
happiness in its diverse sense is an important theme. Depictions of the happy life
as well as philosophical and literary critiques of the primacy given to happiness
will be discussed.
FORMAT: Lecture/seminar
EMSP 2440.03: Providence, Progress, Degeneration:
Early Modern Ideas of Historical Transformation.
Against the background of works of both Renaissance historians and seventeenth-
century state-of-nature theorists, eighteenth-century authors developed new
visions of multistaged historical existence. Readings may include selections
from authors such as Vico, Rousseau, Voltaire, Smith, Gibbon, Lessing, Kant, and
Herder.
FORMAT: Lecture/seminar
EMSP 2450.03: The East is Read: Early Modern
Conceptions of Asian Thought.
This course will consider Early Modern European interpretations of key Asian
events, themes, and/or stories as the Protestant Reformation, Shakespearean
dramas, the decline of chivalry in France and Japan, French Absolutism, the wild
child phenomenon, and cross-cultural encounters in the Americas and South
America. The emphasis will be on European interpretations of Asian thought and
what these interpretations reveal about the self-consciousness of European thinkers in the
Early Modern period.
FORMAT: Seminar
CROSS-LISTING: CHIN 2080.03
EMSP 2460.03: Images of Modernity in Cinema: Early
Modern Stories on Film.
This course is intended to introduce students to the history and culture of
Early Modern Europe.
CROSS-LISTING: HIST 2750.03
EMSP 2470.03: Visions of Renaissance Political
Thought in Film.
Renaissance political thought has been successfully adapted to films set in various
imagined contexts. This course will examine the creative intersections between
the political ideas in Renaissance texts and film adaptations in such settings as
Renaissance England, feudal Japan, and modern-day Britain and the United
States. The films may include such titles as The Godfather I and II, Edward II, Richard III, Ran, Throne of Blood and The Revenuers Tragedy.
FORMAT: Film Screenings and Lecture/Discussion
EMSP 2480.03: The Pirate and Piracy.
This course will examine modern and pre-modern historical, philosophical, and
literary accounts of pirates and piracy. It will also trace ancient and medieval
precursors to these early modern treatments as well as consider later representations—literary
and cinematic—of early modern piracy and implications for contemporary piracy.
FORMAT: Lecture/discussion
CROSS-LISTING: HIST 2750.03
EMSP 3000X/Y.06: The Study of Nature in Early
Modern Europe.
This course provides an overview of the major changes and continuities of
representation of the natural world in the sixteenth, seventeenth and eighteenth
centuries. It seeks to move beyond the idea that the study of nature is incommensurable if isolated from new techniques and technologies and from the philosophical and artistic disciplines, for the development of the study of nature in this period are relative to institutional place and national location, the
principal elements of the social, economic, political and cultural contexts within
which scientists and philosophers of nature worked will be considered. As well, the
aesthetic representations of nature and its study will be a theme throughout the
course.
NOTE: Credit can only be given for this course if X and Y are completed in
consecutive terms and partial credit cannot be given for a single term.
FORMATT: Lectures/tutorials
EMSP 3203.03: Critiques of Modernity.
What is the status of the modern world? Is it a source of freedom and truth or
rather the deconstruction of religion, humanity and nature? The contemporary
period has defined itself in many ways through the critique of modernity. These
critiques have come from an array of perspectives: philosophic, aesthetic,
religious, moral, political. This course will provide a survey of a number of such
critiques seeking to grasp both points of community, disagreement and
development.
FORMAT: Seminar
CROSS-LISTING: CTMP 3103.03
EMSP 3210.03: The Dialectic of Enlightenment I.
In the course of criticizing tradition and integrating the experience of Renaissance
and the Reformation, in early modern thought, the study of modern natural science
and modern political institutions, Early Modern Europeans sought to reconcile
— or often conflict — various essential and fundamental understandings of
Enlightenment. By the end of the eighteenth century, science, morality, and art were seen as different
realities of activity in which questions of truth, justice, and taste could be separately
addressed. In this course, we will consider how the different conceptions of
Enlightenment have informed three major Enlightenment thinkers: Kant, Herder,
and Rousseau.
FORMATT: Seminar
CROSS-LISTING: CTMP 3103.03
EMSP 3213.03: Kant and Radical Evil.
This course will examine the roots of the modern concept of evil in the
late work of Immanuel Kant. Beginning with the traditional, pre-Kantian
concept of evil as a merely negative phenomenon - as a lack or privation of
being - we will trace the emergence of Kant’s radical innovation, the positive
concept of evil as the ineluctably “evil” at the very heart of human freedom.
We will also consider at some length the subsequent career of Kant’s doctrine in
19th and 20th Century thought.
FORMAT: Seminar
CROSS-LISTING: CTMP 3113.03
EXCLUSION: EMSP 3103.03
EMSP 3220.03: The Dialectic of Enlightenment II.
In enlightened European culture, religion, state, and society as well as science,
morality, and art were gradually separated from one another under exclusively
formal points of view, and subjected to a critical reason that took the role of a
supreme judge. By the beginning of the nineteenth century, many European
critics began to question the self-understanding evoked by the principle of critical
reason. This course will consider how Enlightenment’s critical reason moved
European philosophers and theologians, artists and social theorists, to develop and expand their self-
derstanding to the point where Enlightenment became properly defined as the
formal division of culture and make critical judgements in relation to them. Special
attention will be paid to the relationship between Enlightenment and the growing
sense of conflict between religion and secular freedom.
FORMATT: Seminar
CROSS-LISTING: CTMP 3113.03
EMSP 3250.03: The Filmic Image of Science in
Early Modern Europe.
In the course of criticizing tradition and integrating the experience of Renaissance
and the Reformation, in early modern thought, the study of modern natural science
and modern political institutions, Early Modern Europeans sought to reconcile
— or often conflict — various essential and fundamental understandings of
Enlightenment. By the end of the eighteenth century, science, morality, and art were seen as different
realities of activity in which questions of truth, justice, and taste could be separately
addressed. In this course, we will consider how the different conceptions of
Enlightenment have informed three major Enlightenment thinkers: Kant, Herder,
and Rousseau.
FORMATT: Seminar
CROSS-LISTING: CTMP 3103.03
EXCLUSION: EMSP 3103.03
between religion and the demand that the unifying force in culture come from a dialectic reading in the principle of enlightened reason itself.

**FORMAT:** Seminar

**EMSP 3230.03: Impersonations: Theatre, Performance and Identity in Early Modern England.**

In the context of the Ovidian story of the Deity of Love, Pas de deux Miranda explains man’s ability to “transform himself into what he most wills, taking a character from the essence of all those things to which he is most right.” For Pas de deux Miranda, human subjects were distinguished less by preordained identities than by an active ability to fashion and perform new selves. In Early Modern England, the burgeoning commercial theatre became a focal point for cultural debates about the social and ethical ramifications of the performative construction of the self. This course will explore these debates both as they relate to the growth of the professional theatre and in terms of their wider implications for Early Modern English society. We will begin by looking at the roles traditionally played by performance in the affirmation of identities both aristocratic and plebeian. We will then go on to examine a number of plays from the main genres performed in English public theatres between 1590 and 1640. By reading these plays alongside primary sources from conduct manuals to statutes for theatre governance, and from playwrights’ celebrations of their art to Puritans’ attacks on the theatre’s degeneracy, we will explore the huge range of cultural responses to the relationship between performance and identity in a rapidly shifting social order. Special attention will be paid to the interrogations of class, gender, sexuality, and morality implied in these works, and to their far-reaching effect on English society before and after the closure of the public theatres in 1642.

**FORMAT:** Seminar

**EMSP 3240.03: Opera and the Idea of Enlightenment.**

This course explores opera’s emergence and development as a dominant Western art form during and after the Early Modern period. Through close analysis of key works, we will strive to understand how opera’s fusion of music, drama, poetry, and visual spectacle reflected and helped to shape-changing ideals of enlightenment.

**FORMAT:** Screenings/Lecture/Discussion

**EMSP 3250.03: Atheism in Early Modern Europe.**

Although atheism continues to be a source of controversy and debate, one of the most significant features of the modern world is the estrangement to which religious unbelief has become accepted as a morally and intellectually defensible position. This course will seek to understand the rise of modern atheism by examining its origins in the Early Modern world.

**FORMAT:** Lecture/tutorial

**CROSS-LISTING:** REL 3230.03

**EMSP 3310.03: Hidden Worlds: Microscopy in Early Modern Europe.**

Microscopes were introduced into Europe at the beginning of the seventeenth century. In the works of Robert Hooke, the microscope opened up a “new visible World” to the understanding—a strange new landscape populated by vast numbers of new creatures. This course will explore the influence of the microscope and the micro-world that it opened up, in the development of Early Modern science. In the first part of the course, we will take a close look at early microscopy technology and its evolution in the seventeenth, eighteenth, and early nineteenth centuries. The second part of the course will explore the role of the microscope in the evolution of Early Modern science. We will, for example, consider the central role of microscopy in the emergence of the new mechanical philosophy and the new experimental science. We will also discuss the histories of some scientific theorists (for example, of recognition and generation) that made particular use of observations made with microscopes. Finally, the microscope’s revelation of “new worlds” raised conceptual difficulties that puzzled scientists and philosophers alike. In the final part of the course we will consider the challenges that new kinds of experience raised for Early Modern philosophy, as well as the possible influence of philosophical debates on the acceptance of the new technology.

**FORMAT:** Seminar

**CROSS-LISTING:** HSTC 3300.03

**EMSP 3321.03: In Search of the Philosopher’s Stone: The History of European Alchemy.**

This course traces the development of alchemical theories and practices in the Medieval Latin West up to the emergence of early modern chemistry. It employs a multi-disciplinary approach which treats the scientific, technological, artistic and iconographic dimensions of alchemy as interdependent. The entire development of European alchemy is covered from the transmission of the Greek and Islamic alchemical traditions in the 12th century up to Newton, whose alchemical theories represent a point of transition to early modern chemistry in one direction, and to a more spiritualized occult philosophy in the other.

This course is independent of HSTC 3210.03. All students interested in the intersections of science, magic and mysticism are welcome.

**CROSS-LISTING:** HSTC 3300.03, HIST 3121.03

**EMSP 3330.03: Science and Religion: Historical Perspectives.**

Beginning with an overview of the history and methodology of the study of science and religion, encounters between science and religion are traced from the dawn of civilization to the end of the eighteenth century, with a special focus on the Early Modern period. From an examination of the biblical view of nature and ancient Babylonian astrology and divination, this course moves through a treatment of the centrality of theology to medieval science on to natural theology and the “Watchmaker” Design Argument of the seventeenth and eighteenth centuries. Models of conflict, harmony and complementarity opposed to characterizations between science and religion are explored through case studies such as Galileo’s controversy with the Church and instances where religious belief inspired scientists like Boyle and Newton. Claims that certain confessional traditions (notably Protestantism and its dissenting offshoots) facilitated the rise of modern science are also appraised. Science-religion relations are examined both from the standpoint of mainstream religion and with respect to religious heterodoxy, prophecy, alchemy, magic, and witchcraft. This course employs examples from Jewish and Islamic cultures in addition to the Judaeo-Christian tradition. Special features include a focus on primary texts and guest lectures by scientists.

**FORMAT:** Seminar

**CROSS-LISTING:** HSTC 3200.03, HST 3073.03

**EMSP 3340.03: Knowledge is Power: Francis Bacon and the Birth of Modernity.**

Modern western culture draws close connections between three facets of human experience: a) our knowledge of nature; b) our visions of what it is to be human; and c) power, or the political, social, and technological means by which we relate to the first two: nature and human nature. The Renaissance period (roughly 1400-1650) was highly influential in laying the foundations for modernity as we know it—scientifically, politically, religiously, socially, and culturally. This course will examine both sides of this development, with an emphasis on Baconian thought.

**FORMAT:** Seminar

**CROSS-LISTING:** HSTC 3200.03

**EMSP 3420.03: Religious Warfare and Political Theology in the Early Modern Period.**

The sixteenth and seventeenth centuries in Europe witnessed tremendous upheavals in society, in part caused by religiously based strife. Many thinkers responded to these events by formulating “political theologies,” i.e., interpretations of religious teachings especially as contained in scripture with a view to assessing the political consequences of religion and to harmonizing religious interpretations with a particular conception of political life. We shall examine various Continental European and British texts of the Early Modern period which are both timely and thoughtful reflections on Christian teachings as they relate to and sometimes conflict with the philosophical underpinnings of the modern state and religious freedom.

**FORMAT:** Seminar

**CROSS-LISTING:** REL 3016.03, REL 3017.03

**EMSP 3430.03: Theories of Punishment: Retribution and Social Control in Early Modern Thought.**

Among the distinctive characteristics of the Early Modern period are our new conceptions of retribution and social control. In this course, we shall examine a number of texts which reflect the diversity of philosophical and theological approaches to law and punishments, both human and divine. We begin with a consideration of pre-modern and non-Western approaches to these issues. We then explore the various Early Modern reactions to and departures from these approaches, including the writings of Protestant thinkers and political philosophers before, during, and after the Enlightenment. Finally, we shall consider Foucault’s “normalization thesis” to see if it illuminates our understanding of Early Modern thought on punishment.

**FORMAT:** Seminar

172 Early Modern Studies Program
In this course, students will explore a focused topic in an interdisciplinary context. Topics vary each year. Some of the topics are "The Quarrel of the Ancients and Moderns", "The Status of the Artist in Society", and "Storm and Stress".

Note: Not more than one of each course number can be taken for credit towards the Early Modern Studies program.

**EMSP 3440.03: Reconstructing Political Modernity.**

This course will examine several interpretations of Early Modern philosophers by twentieth-century authors who are original political thinkers in their own right. These interpretations have involved as much reconstruction of Early Modern thought as helpful scholarly commentary. Indeed, they sometimes shed more light on the interpreter than the thinkers being interpreted. Thus, we shall critically analyze the radical transformations of Early Modern texts that were undertaken in order to make these works relevant to social and political questions centuries later.

**FORMAT:** Seminar

**Prerequisites:** One of: CTMP 2000.06, CTMP 2100.03, CTMP 3100.03, EMSP 3200.06, EMSP 3400.03, EMSP 3420.03, EMSP 3510.03, EMSP 3630.03, PHIL 2210.03, PHIL 2220.03, POLI 2400.03, POLI 2401.03, POLI 2402.03, or instructor's permission.

**Cross-listing:** CTMP 3110.03

**EMSP 3450.03: Common Tragedy: Catastrophe, Loss and Ambition in Early Modern Europe.**

Modern consciousness can be defined by new visions of death, loss and ambition. As modernity emerges and "infinitism", so do writings on catastrophe. Writings from the cataclysmic fourteenth - century, the seventeenth - century plagues, and the 1755 Lisbon earthquake provide insight into shifts and continuities between late medieval and modern senses of the self.

**Format:** Lecture

**Exclusion:** EMSP 3600.03 for the 2006/07 academic year only

**EMSP 3510X/03/3511.03/3515X/Y.06/4510.03/4511.03/4515X/Y.06:** Independent Readings in Early Modern Studies.

In a reading course the student is assigned to a member of staff for regular meetings to discuss readings in a selected area. Papers and research projects are expected. Only one full credit or the equivalent may be taken in a year. No more than two full credits of this type may be taken during the course of study. Note: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

**Format:** Individual instruction

**Prerequisites:** Honours registration in Early Modern Studies, permission of the instructor and the Director of the Programme. Restricted to students in 3rd year and above.

**EMSP 3610.03: Studies in Early Modern Subjectivities.**

In this course, students will explore a focused topic in an interdisciplinary context. Topics vary each year. Some of the topics are "Empirical Selves and Transcendental Selves in German Idealism", "Freedom and Necessity in Enlightenment Difference", "The Self in Portraiture and the Visual Arts", and "Reformation and Subjectivity in Early Modern Thought".

Note: Not more than one of each course number can be taken for credit towards the Early Modern Studies Program.

**Format:** Seminar

**EMSP 3620.03: Studies in Early Modern Natural Philosophy.**

In this course, students will explore a focused topic in an interdisciplinary context. Topics vary each year. Some of the topics are "Teleology and Early Modern Natural Philosophy", "Mathematics and Metaphysics in the Seventeenth Century".

Note: Not more than one of each course number can be taken for credit towards the Early Modern Studies Program.

**Format:** Lecture/discussion

**EMSP 3630.03: Studies in Early Modern Social and Political Thought.**

In this course, students will explore a focused topic in an interdisciplinary context. Topics vary each year. Some of the topics are "Nature of Nature in Early Modern Political Thought", "The Seventeenth-Century Discovery of Sovereignty", "The Concept of the State", and "Apocalyptic Thought in the Early Modern Period".

Note: Not more than one of each course number can be taken for credit towards the Early Modern Studies Program.

**Format:** Lecture/discussion

**EMSP 3640.03: Studies in Early Modern Aesthetics.**

In this course, students will explore a focused topic in an interdisciplinary context. Topics vary each year. Some of the topics are "The Quarrel of the Ancients and Moderns", "The Status of the Artist in Society", and "Storm and Stress".

Note: Not more than one of each course number can be taken for credit towards the Early Modern Studies Program.

**FORMAT:** Lecture/discussion

**EMSP 4000X/Y.06: Conceptions of State, Society, and Revolution in the Early Modern Period.**

This course involves close examination of political works by important and influential writers from the sixteenth to early nineteenth centuries. These writers reflected on historical changes and events in their day - including the discovery of Italy, the Protestant Reformation, the English civil war, the Glorious Revolution, the rise of bourgeois society, the French Revolution, and the Napoleonic wars - and sometimes formulated complex and sophisticated accounts of human society, sometimes to provide for social and political stability, sometimes to promote freedom and justice. We shall trace the development of their ideas, from philosophical and literary investigations into human nature and contractual theories of society to considerations on political life in relation to philosophy of history. Assigned texts will include works by such authors as Machiavelli, Shakespeare, Hobbes, Milton, Locke, Swift, Montesquieu, Rousseau, Lessing, Goethe, Kant, Burke, Weimar Classicists, Schiller, and Hegel.

Note: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

**Format:** Seminar

**EMSP 4300.03: Nature and Romanticism.**

Kant’s “Copernican Revolution” in philosophy, ironically, marked a resurrection of a full-blown “idealist” philosophy of nature. This course will investigate the attempts of Kant’s followers to construct a natural philosophy and its engagement with the rival mechanical world-picture. It explores the implications of this endeavour for the growth of romanticism, and our modern picture of “nature.” It begins with an examination of the ambiguous heritage presented by Kant’s writings on nature and proceeds through the attempts to develop a complete program of idealist Natural Philosophy and its spread throughout European thought by the medium of romanticist art and natural philosophy.

**Format:** Lecture/tutorial

**Cross-listing:** HSTC 4300.03

**EMSP 4310.03: Newton and Newtonianism.**

This seminar involves a close study of the work of Isaac Newton, along with that of his supporters and detractors. Beginning with an overview of pre-Newtonian science, topics range from Newton’s rejection of Cartesianism through his contributions to mathematics, physics, astronomy and optics, along with his inductive scientific method, laws of motion, and calculus priority dispute with Leibniz. Also considered are lesser-known aspects of his career, such as his secretive pursuit of alchemy, his heretical theology, his attempts to unravel the Apocalypse, his role in British statecraft, and his autocratic rule of the Royal Society. A taxonomy of the forms of Newtonianism that emerged after Newton’s death also allows an exploration of iconographical and apologetic uses of Newton, and his differing legacies in the Britain and France. This seminar concentrates on primary readings, including Newton’s Principia (1687), Opticks (1704), alchemical treatises and unpublished theological papers, as well as the Leibnitz-Clarke correspondence (1717), anti-Newtonianisms and eighteenth-century popularizations of Newtonianism such as Voltaire’s Philosophical Letters (1731) and Machiavelli’s Account of the Sciences (1770). Attention is paid to the social, cultural, and political aspects of Newtonianism and no prior knowledge of science is required.

**Format:** Seminar

**Cross-listing:** HSTC 4490.03

**EMSP 4500X/Y.06: Honours Seminar in Early Modern Studies: The Development of Aesthetic Theory in the Early Modern Period.**

While the arts have been a topic of theoretical concern since antiquity, it is only in the Early Modern period that aesthetics emerged as an independent field of inquiry. This seminar will consider how the various understandings of the arts with which the Early Modern period began developed into the independent field of aesthetics. Throughout the course, art and literature of the period will be studied in conjunction with theoretical texts. This course may be designated as fulfilling the honours qualifying examination requirements for an EMSP Combined Honours BA (see section 6 of Degree Programs in Early Modern Studies Program 173
Program above). Students are also welcome to take this course as an elective with the permission of the instructor.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMA T: Seminar
PREREQUISITE: Honours registration in Early Modern Studies or permission of the instructor.

EMSP 4550X/Y:06: Honours Thesis in Early Modern Studies: Reading and Research.
In this course the student is assigned to a member of staff for regular meetings to discuss readings and present research for the purpose of completing an honour thesis in Early Modern Studies.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMA T: Individual instruction

EMSP 4610.03: Special Topics in Early Modern Subjectivities.
The Special Topics courses focus on one author or one particular school of thought in an interdisciplinary context. Topics vary each year. Some of the topics are "Montaigne", "Interactivity in Shakespeare", and "Jansenism and the Self".

NOTE: Not more than one of each course number can be taken for credit towards the Early Modern Studies Program.

EMSP 4620.03: Special Topics in Early Modern Natural Philosophy.
The Special Topics courses focus on one author or one particular school of thought in an interdisciplinary context. Topics vary each year. Some of the topics are "Leibniz", "Goethe's Natural Science", and "Experimentalism".

NOTE: Not more than one of each course number can be taken for credit towards the Early Modern Studies Program.

EMSP 4630.03: Special Topics in Early Modern Social and Political Thought.
The Special Topics courses focus on one author or one particular school of thought in an interdisciplinary context. Topics vary each year. Some of the topics are "Hobbes", "Muchness and Reason of State Theories", and "Milton and Early Modern Political Theory".

NOTE: Not more than one of each course number can be taken for credit towards the Early Modern Studies Program.

EMSP 4640.03: Special Topics in Early Modern Aesthetics.
The Special Topics courses focus on one author or one particular school of thought in an interdisciplinary context. Topics vary each year. Some of the topics are "Sterne and British Empiricism", "Romanticism as a European Phenomenon", and "Hegel's Aesthetics".

NOTE: Not more than one of each course number can be taken for credit towards the Early Modern Studies Program.

English
Location: 6135 University Avenue, Room 1106
Halifax, NS
Mailing Address: PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3384
Fax: (902) 494-2176
Website: http://www.dal.ca/english

Dean
Summerby-Murray, R., ATCL Dip (Trinity College, London), BA, MA (Canterbury), PhD (Toronto)

Chair
Ross, T. (494-6973)

Undergraduate Advisor
Greenfield, B. (494-6969)

Professors Emeriti
Fraser, J., MA (Oxon), PhD (Minn), FRSC
Wainwright, J. A., BA (Toronto), MA, PhD (Dalhousie), McCullough Professor in English

Professors
Barker, W. A. B. (Dartmouth), MA, BEd, PhD (Toronto)
Banner, J. R., BA, BEd, MA, PhD (Alta)
Diepeveen, L.P., BA (Calvin Col), MA, PhD (Ill)
Furrow, M. M., BA (Dalhousie), MA, MPhil, PhD (Yale)
Haubert, R., BA (South), MA, PhD (Pitt)
Luckyj, C., BA, MA, PhD (Toronto)
Stewart, A. F., BA (Guelph), MA, PhD (Queen's)
Stone, M. L., BA (Guelph), MA, MPhil (Warwick), PhD (Toronto), McClellan Chair in English
Termaat, R. R., BA (UBC), MA, PhD (Comell)
Thompson, J. A., BA (Western), MA, PhD (Toronto)
Wight, J., BA, MA, PhD (Western)

Associate Professors
Bennett, E., BA, MA (Dalhousie), MA (Carleton), MA (Carleton), MPhil, PhD (Dalhousie)
Cawsey, K., BA (Wilfrid Laurier), MA (Oxford), PhD (Toronto)
Dawson, C., BA (UBC), MA, MA (Sussex), PhD (McGill)
Enns, A., BA (University of North Carolina), MA (Dalhousie), MA, PhD (University of Iowa)
Evans, D., BA (Toronto), MA, PhD (Rutgers)
Greenfield, B., BA (York), MA (McGill), PhD (Columbia)
Huchet, L., BA, MA (McGill), PhD (Waterloo)
Irvine, D., BA (Victoria), MA (Calgary), PhD (McGill)
Muir, R., BA (UBC), MA, PhD (Toronto)

Assistant Professors
Brittan, A., BA, MA (Toronto), PhD (Pennsylvania)
Giles, M., BA (Alberta), MA, PhD (Calgary)

Senior Instructor
Choyce, L., BA (Rutgers), MA (Mountclair), MA (CUNY)
I. Introduction
The study of English includes both an analysis of texts and awareness of content. The texts provide an analysis of various English courses will range from the traditional to the contemporary. English is a discipline which can and does adjust to include writings by Simonsway, Timothee, Tsin, Morrison, and Charles Ascher alongside works by Unacc, Shakespeare, Milton, Susan, and the rest. The wide range of human experience represented in these texts can provide the student with what Kenneth Burke has called “equipment for living.” To more practical terms, the discipline of English fosters the development of various human skills. It requires the student to think, and to use language with clarity, judgment, and imagination.

But individual works of literature are also related in various ways to their social, cultural, and political contexts. For this reason, curiosity about a particular text often leads to inquiries that touch upon history, philosophy, politics, religion, biography, and the fine arts as well. The written text turns out to be a link between an individual’s sensibility and the rest of the world. The value of English studies, therefore, though difficult to measure, can be discovered both in the large semiotics of the cultures to which we belong, and in the smallest nuances of the language we use.

The calendar descriptions below describe all English courses. Not all are offered in any given year. Students should consult the English Department website for updated information about which courses are offered this year, and to get detailed descriptions of courses (with booklists). There is a variety of first-year (1000-level) English courses to suit all inclinations and needs, and all sections with a number ending in -0 can be used to fulfill the University Writing Requirement. Once the first year is complete, students may register in any course at the 2000 or 3000 level, but should ensure that they have the necessary prerequisites (most courses require a full credit in English at the 1000 level, or else Theatre 1000 or King’s Foundation Year, but a few are open to anyone with a Writing Requirement course in any discipline). The wide-ranging 2000-level courses are well suited to those comprising in their English, or studying it as a complement to their main area, or taking it as an elective. The smaller and more historically-focused 3000 courses are also open to both majors and non-majors.

More intensive seminars at the 4000 level are mainly intended for students in their third and fourth years of an English Majors or Honours program. Two of the half-credit courses (2001, 2003, 2004, 2005, 2006) and one of the half-credit theory courses (1000, 3001, 3002) are required of all English Majors and MajorsHonours students. Among the English Majors and MajorsHonours programs, these six to nine credits, they must take the following:

1. at least one of 3000.03, 3001.03 or 3002.03
2. at least one (half credit) of the six 2000 level surveys (ENGL 2001.03, 2002.03, 2003.03, 2004.03, 2005.03, 2006.03)
3. at least one full credit in each of the following two groups:
   a) Old English, Middle English, Renaissance (ENGL 2018.03, 2020.03, 2022.03, 3005.03, 3007.06, 3008.03, 3010.03, 3011.03, 3015.03)
   b) Restoration, Eighteenth-Century, Romantic, Victorian, American (pre 1914) (ENGL 3017.03, 3019.03, 3020.03, 3022.03, 3025.06, 3029.03, 3031.03, 3032.03, 3040.03, 3041.03, 3042.03)
4. 4990/4995 English Honours Capstone (for students weighing their programs towards English)
5. nine credits (or three half credits) at the 4000 level

To be considered for the Honours program, students must attain a 3.3 average GPA in upper-level English courses, and apply to the English Department Chair.

C. BA (20 credit) Major in English
Students must meet the faculty requirements, which include six to nine credits in English above the 1000 level, including three credits above the 2000 level, within these six to nine credits, they must take the following:

1. at least one of 3000.03, 3001.03 or 3002.03
2. at least one (half credit) of the six 2000 level surveys (ENGL 2001.03, 2002.03, 2003.03, 2004.03, 2005.03, 2006.03)
3. at least one full credit in each of the following two groups:
   a) Old English, Middle English, Renaissance (ENGL 2018.03, 2020.03, 2022.03, 3005.03, 3007.06, 3008.03, 3010.03, 3011.03, 3015.03)
   b) Restoration, Eighteenth-Century, Romantic, Victorian, American (pre 1914) (ENGL 3017.03, 3019.03, 3020.03, 3022.03, 3025.06, 3029.03, 3031.03, 3032.03, 3040.03, 3041.03, 3042.03)
4. 4990/4995 English Honours Capstone (for students weighing their programs towards English)
5. nine credits hours (or three half credits) at the 4000 level

To be considered for the Honours program, students must attain a 3.3 average GPA in upper-level English courses, and apply to the English Department Chair.

D. Double Major
Students must meet the requirements for the double major, which include 10 - 14 credits in each of the Major subjects above the 1000 level, including three credits above the 2000 level in each subject. Among their English courses, students must take:

1. at least one of 3000.03, 3001.03 or 3002.03
2. at least one (half credit) of the six 2000 level surveys (ENGL 2001.03, 2002.03, 2003.03, 2004.03, 2005.03, 2006.03)
3. at least three credits (or one half credit) in each of the following two groups:
   a) Old English, Middle English, Renaissance (ENGL 2018.03, 2020.03, 2022.03, 3005.03, 3007.06, 3008.03, 3010.03, 3011.03, 3015.03)
   b) Restoration, Eighteenth-Century, Romantic, Victorian, American (pre 1914) (ENGL 3017.03, 3019.03, 3020.03, 3022.03, 3025.06, 3029.03, 3031.03, 3032.03, 3040.03, 3041.03, 3042.03)
4. One half credit at the 4000 level

E. BA (15 credit) Minor in English
See requirements for minor in the College of Arts and Science section of this calendar.

F. Minor in English
See Minors in the College of Arts and Science section of this calendar.

G. Emphasis in Canadian Studies
English students interested in obtaining an emphasis in Canadian Studies along with their major in English should consult the Canadian Studies coordinate for information on requirements and for a list of English courses approved with Canadian Studies.

H. Creative Writing Program
The Creative Writing program in the Faculty of Arts and Social Sciences is not restricted to FASS students, and allows any Dalhousie student interested in writing fiction, poetry, dramatic narrative (playwriting), and narrative non-fiction to take four full credits in creative writing above the first-year level, thus combining those courses with his or her major or honours area of study. Therefore, the program
English prepares students to write analytic and research papers. The focus of this course is
on the principles and practice of composition and not on the analysis of works of
literature. In combination with any of the other 1000 level half-credit courses in English with a number ending in 0 (other than 1010, 1020, 1440, or 1040), it fulfills the Writing Requirement.

As an aid to choosing courses at the 1000 level, students should consult the
detailed description of each course available on the English Department’s web
site. Some examples of patterns of course choice that would allow fulfillment of the Writing Requirement and the humanities distribution requirement, and would allow all three half-credit courses to be counted for credit, would include 1010, 1020, and 1440; or 1010, 1020, and 1011 or 1010, 1000, 1021; and so on.

ENGL 1000/Y.06: Introduction to Literature.
This course has two broad but connected objectives: (a) to introduce students to the
advanced study of literature in English; (b) to develop students’ literary skills so that they will be more critical and responsive readers and more exact and imaginative writers. The texts to be studied will differ from section to section, but all sections will explore a variety of authors, genres, national literatures, and time periods. Students can expect to read writers from William Shakespeare to William Gibson, from George Eliot to George Elliot Clarke, and from Jane Austen to Jack Kerouac. Practice in writing is carried on throughout the year in regular essays.

For a more complete description of all sections and texts, students should consult the Departmental website.

ENGL 1000.06 will satisfy the University Writing Requirement and serve as prerequisite for entry into most upper-level courses.

NOTE: Credit can only be given for the course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

ENGL 1010.03: Prose and Fiction: Writing Requirement.
This course shares with its complement, ENGL 1020.03, two broad but connected objectives: (a) to introduce students to the advanced study of literature; (b) to develop students’ literary skills so that they will be more critical and responsive readers and more exact and imaginative writers. Terminology and concepts central to literary studies will be introduced. This course will consider the effect of genre, and it will focus on non-fictional prose (such as essays and autobiography) and fiction (such as short stories and novels). Both recent and early examples of various genres will be explored. Please consult the full description of each section on the departmental website to find the one best suited to your interests. Explicit instruction in clear and forceful writing is an important component of this course.

NOTE: Any two of ENGL 1010.03, ENGL 1020.03, ENGL 1040.03, ENGL 1050.03, or ENGL 1100.03 will satisfy the University Writing Requirement, and serve as prerequisite for entry into most upper-level English courses.

FORMAT: Lecture/discussion. @ Writing Requirement.
EXCLUSION: ENGL 1010.03, ENGL 1020.03

ENGL 1011.03: Prose and Fiction: non-Writing Requirement.
This course shares with its complement, ENGL 1021.03, two broad but connected objectives: (a) to introduce students to the advanced study of literature; (b) to develop students’ literary skills so that they will be more critical and responsive readers and more exact and imaginative writers. Terminology and concepts central to literary studies will be introduced. This course will consider the effect of genre, and it will focus on non-fictional prose (such as essays and autobiography) and fiction (such as short stories and novels). Both recent and early examples of various genres will be explored. Please consult the full description of each section on the departmental website to find the one best suited to your interests. This is the non-Writing Requirement version of the course. For the WR version see ENGL 1010.

FORMAT: Lecture/discussion
EXCLUSION: ENGL 1000, ENGL 1010

ENGL 1020.03: Poetry and Drama: Writing Requirement.
This course shares with its complement, ENGL 1010.03, two broad but connected objectives: (a) to introduce students to the advanced study of literature; (b) to develop students’ literary skills so that they will be more critical and responsive readers and more exact and imaginative writers. Terminology and concepts central to literary studies will be introduced. This course will consider the effect of genre, and it will focus on non-fictional prose (such as essays and autobiography) and fiction (such as short stories and novels). Both recent and early examples of various genres will be explored. Please consult the full description of each section on the departmental website to find the one best suited to your interests. This is the non-Writing Requirement version of the course. For the WR version see ENGL 1010.

FORMAT: Lecture/discussion
EXCLUSION: ENGL 1000, ENGL 1010

ENGL 1020.03: Poetry and Drama: Writing Requirement.
This course shares with its complement, ENGL 1010.03, two broad but connected objectives: (a) to introduce students to the advanced study of literature; (b) to develop students’ literary skills so that they will be more critical and responsive readers and more exact and imaginative writers. Terminology and concepts central to literary studies will be introduced. This course will consider the effect of genre, and it will focus on non-fictional prose (such as essays and autobiography) and fiction (such as short stories and novels). Both recent and early examples of various genres will be explored. Please consult the full description of each section on the departmental website to find the one best suited to your interests. This is the non-Writing Requirement version of the course. For the WR version see ENGL 1010.
to your interests. Explicit instruction in clear and forceful writing is an important component of this course.

FORMAT: Lecture/discussion at Writing Requirement.
PREREQUISITE: Any two of ENGL 1010.03, ENGL 1020.03, ENGL 1040.03, ENGL 1060.03, or ENGL 1100.03 will satisfy the University Writing Requirement and serve as prerequisites for entry into more upper-level English courses.

EXCLUSION: ENGL 1000, ENGL 1021

ENGL 1021.03: Poetry and Drama: non-Writing Requirement.
This course shares an entry point, ENGL 1011.03, two broad but connected objectives: (a) to introduce students to the advanced study of literature; (b) to develop students’ literary skills further so that they will be more critical and responsive readers and more exact and imaginative writers. Terminology and concepts central to literary studies will be introduced. The course will consider the effect of genre, and focus on drama and various forms of poetry. Both recent and early examples of various genres will be explored. Please consult the full descriptions of each section on the departmental website to find the one best suited to your interests. This is the non-Writing Requirement version of the course. For the WR version see ENGL 1020.

FORMAT: Lecture/discussion
EXCLUSION: ENGL 1000, ENGL 1020

ENGL 1040.03: Reading Popular Culture: Writing Requirement.
This course introduces students to methods of analyzing forms of cultural expression. It engages students in the serious study of diverse creative media including film, television, literature, video games, electronic texts, jokes, advertising, graffiti, cartoons, song lyrics and consumer goods. Explicit instruction in clear and forceful writing is an important component of this course.

FORMAT: Lecture/discussion at Writing Requirement
EXCLUSION: ENGL 1040.03

ENGL 1041.03: Reading Popular Culture: non-Writing Requirement.
This course introduces students to methods of analyzing forms of cultural expression. It engages students in the serious study of diverse creative media including film, television, literature, video games, electronic texts, jokes, advertising, graffiti, cartoons, song lyrics and consumer goods. Explicit instruction in clear and forceful writing is an important component of this course.

FORMAT: Lecture/discussion
EXCLUSION: ENGL 1040.03

ENGL 1050.03: Pulp Fiction: Writing Requirement.
This course provides an entry point to the discussion of literature through ‘pulp’ genres such as romance, mystery, crime, horror, sports literature, and comic books. It is available to Writing-Requirement and non-Writing Requirement versions. Explicit instruction in clear and forceful writing is an important component of this course.

FORMAT: Lecture/discussion at Writing Requirement
EXCLUSION: ENGL 1051.03

ENGL 1051.03: Pulp Fiction: non-Writing Requirement.
This course provides an entry point to the discussion of literature through ‘pulp’ genres such as romance, mystery, crime, horror, sports literature, and comic books. This is the non-Writing Requirement version of the course. For the WR version see ENGL 1050.

FORMAT: Lecture/discussion
EXCLUSION: ENGL 1050.03

ENGL 1100.03: Writing for University.
An introduction to rhetoric and composition, this course is designed to prepare students to write analytic and research papers. Grammatical and rhetorical terms are addressed, and the course includes a number of assignments to hone writing skills from outline to revision.

FORMAT: Lecture/discussion at Writing Requirement

English Courses at the 2000 level.
Courses at the 2000 level (or above) in the first year, with the necessary prerequisites. They include writing-intensive surveys of historical periods, national literatures, and major fields intended as an entrance into the discipline of literary studies, as well as a colorful selection of genre-, author- and topic-oriented courses. Any two of the six half-credit surveys (2001, 2002, 2003, 2004, 2005, 2006) will fulfill the 2000-level requirements for the English minor, major, or honours programs. The following courses will accept any university Writing Requirement course as a prerequisite: ENGL 1018, 2018, 2201, 2210, 2001, 2008, 2090, 2095, 2110, 2202, 2218, 2221, 2231, 2232, 2233, 2236. As these courses are not offered every year, students are strongly encouraged to consult the detailed description of this year’s courses available on the English Department’s web site.

ENGL 2001.03: British Literature to 1800.
This course traces the course of British literature from its beginnings to the year 1800. Starting with Old English works such as Beowulf in their historical contexts, we will move on to Middle English, Chaucer, Renaissance and eighteenth-century literature, looking at writers such as Chaucer, Shakespeare, Donne, Milton, Dryden, Swift, and Pope. This course puts special emphasis on developing skills in critical thinking, literary historical research, and scholarly argumentation.

FORMAT: Lecture/discussion with tutorials
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03, or THEA 1000.06; or King’s FYP
EXCLUSION: ENGL 2206.06

ENGL 2002.03: British Literature after 1800.
This course studies many of the traditions and influential writers in British literature from 1800 to the present. Studying these writers will allow students to British-literary history and introduce them to key issues and concepts. This course will also emphasize developing skills in critical thinking, scholarly argumentation, and documentation.

FORMAT: Lecture/discussion with tutorials
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03, or THEA 1000.06; or King’s FYP
EXCLUSION: ENGL 2206.06

ENGL 2003.03: American Literature.
This course emphasizes some of the traditions and influential texts of American literature, from its colonial beginnings to the present, providing historical orientation and demonstrating the diversity of American literature. The course will also emphasize developing skills in critical thinking, scholarly argumentation, and documentation.

FORMAT: Lecture/discussion with tutorials
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03, or THEA 1000.06; or King’s FYP
EXCLUSION: ENGL 2206.06

ENGL 2004.03: Canadian Literature.
From early exploration narratives to contemporary fiction, this course will survey a wide range of key texts in the development of Canadian literature in English. It will consider the literary and historical contexts that inform our readings, and identify and interrogate the various myths, images, icons and institutions that structure our ideas of what it means to be Canadian. This course will also emphasize developing skills in critical thinking, scholarly argumentation, and documentation.

FORMAT: Lecture/discussion with tutorials
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03, or THEA 1000.06; or King’s FYP
EXCLUSION: C328.04

ENGL 2005.03: World Literature.
This course introduces students to some of the most influential writers from around the globe, with a focus on contemporary literature written in English or studied in translation. These writers raise pressing questions about the meaning of justice, the power of nations, and the value of human imagination in our global world. This course will also emphasize developing skills in critical thinking, scholarly argumentation, and documentation.

FORMAT: Lecture/discussion with tutorials
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03, or THEA 1000.06; or King’s FYP
EXCLUSION: ENGL 2212.03, ENGL 2213.03

ENGL 2006.03: Cultural Studies.
This course surveys notions of “culture” from both historical and theoretical perspectives and introduces students to the critical study of the multiple forms and uses of popular culture. This course will also emphasize developing skills in critical thinking, scholarly argumentation, and documentation.
ENGL 1803.06: Arthur.
This course will explore the many stories of King Arthur and his Round Table including some of Sir Thomas Malory’s *Morte d’Arthur*, earlier texts will be read in translation.

FORMAT: Lecture/discussion
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.

ENGL 2010.03: Sampling Medieval Literature.
A properly medieval title for this course would be "Medievalities." It considers works important to the medieval literary scene in England, whether written initially in Old English, Middle English, Anglo-Norman French, Welsh, Norse, or Latin, almost all will be read in translations. The works read may include sagas, riddles, lyrics, the *Breviary* of Marie de France, romances, chronicles, plays, saints’ lives, comic tales, beast fables.

FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP

ENGL 2028.03: Short Poems in English.
Forms and themes in the short poem are studied by means of critical reading of poems written in English. Topics may include the following: the self in the short poem, other persons, public events, love, nature, the city, the machine, wit, myth, traditional forms, free verse, the haiku, lyric as song, spoken poetry, poetry in print, concrete poetry, and possibly other topics to suit the course.

FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP

ENGL 2029.03: Framed Narratives.
This course studies framed narratives - stories within stories - focusing on the dramatic relationship between the frame and the stories within it, and what this form tells us about the nature of storytelling itself.

FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP

ENGL 2030.03: Literature, Health and Healing.
This course employs selected literary texts dealing with various issues of health and healing. The texts include works by writers in different historical periods and cultural contexts. Topics addressed vary, depending upon the instructor, but possible subjects for investigation might include narratives, poems and essays on aging, death or dying; the experience of illness; trauma and recovery; possible subjects for investigation might include narratives, poems and essays on aging, death or dying; the experience of illness; trauma and recovery; representations of the body; mental illness or neurological disorders; addiction; aging, death or dying; the experience of illness; trauma and recovery; this course will explore the relation of literary art to propaganda through the study of selected writings in different genres. Among the terms and concepts that may be considered are didacticism, rhetoric, ideology, pornographic, and censorship.

FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP

ENGL 2050.03: Literature and Propaganda.
This course explores the relation of literary art to propaganda through the study of selected writings in different genres. Among the terms and concepts that may be considered are didacticism, rhetoric, ideology, pornographic, and censorship.

FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP

ENGL 2060.03: Sports Literature.
While material may range from Homer and Pindar to contemporary works, this course will typically focus on a specific sport, period, or subject (e.g., race, the baseball player/athlete) or genre. Students will explore the unique features of writing that deals with athletic or sporting activities and recognize how the heritage of sport is connected to the broader literary canon. Commercialism, nationalism, authority, and aesthetics are possible topics. Consult the current course description.

FORMAT: Lecture/discussion
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.

ENGL 2070.03: African American Literature.
An introduction to some major modes of writing in the African American community. Subjects of enquiry may include the "tragic comedy" narratives of the nineteenth century, or works produced by members of the Harlem Renaissance, or poetry and fiction by contemporary African American women writers.

FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP

ENGL 2080.03: Cartoons and Comics.
A study of cartoons and comics from the eighteenth century to the present, addressing such issues as the history and formal conventions of the genre as well as its various cultural roles, from the political to the popular and from consumer culture to cultural capital.

FORMAT: Lecture
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.

ENGL 2085.03: Video Games: Story, World and Play.
This course introduces students to the critical study of video games and gaming culture, with a particular emphasis on how video games combine interactive gameplay, worldmaking, and storytelling.

FORMAT: Lecture/discussion
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.

ENGL 2088.03: Images and Texts.
This course will examine the interplay of art and literature, from visual and verbal treatments of the same theme (palaver, for example), to similarities in style (such as impressionism or Dadaism), to specific topics such as humor or science.

FORMAT: Lecture
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.

ENGL 2095.03: Narrative in the Cinema.
This course will provide a brief introduction to the study of film narrative. Through an examination of select films from throughout the history of the medium, this course will consider various forms and conventions of
Undergraduate book  Page 179  Wednesday, March 12, 2014  12:03 PM

ENGL 2110.03: Introduction to Professional Writing.
In this introduction to professional writing, students learn to analyze rhetorical situations, adopt appropriate conventions, and adapt the language of abstract discourse communities. They learn how to determine what constitutes "good writing" and how to improve the structure and style of their prose to fit a given professional context. This course gives students the opportunity to research and produce specialized forms of writing. Examples might include case studies, white papers, press releases, business plans, web sites, and user manuals.
FORMAT: Lecture/discussion
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.
EXCLUSION: COMM 1701.03, 1702.03, 2701.03

ENGL 2202.03: Academic Writing.
Focusing on academic discourse, this course is designed for students interested in university writing as an object of study and practice. Students will enhance their understanding of the conventions of scholarly writing, develop their command of English grammar, and hone their skills in the art of using language to persuade.
FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1040.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1090.03, 1100.03; or THEA 1000.06; or King's FYP
EXCLUSION: ENGL 2200.00

ENGL 2214X/Y.06. Shakespeare.
An introduction to Shakespeare's career as a playwright, through discussion and interpretation of a dozen or more of his plays.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1040.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1090.03, 1100.03; or THEA 1000.06; or King's FYP
CROSS-LISTING: THEA 2214.06

ENGL 2218.03: Gothic Fiction.
This course examines a selection of gothic fiction from Horace Walpole onwards. Attention is paid to the Romantic novelists (Radcliffe, Lever, Brontë and Maturin) as well as their Victorian and twentieth-century successors (e.g., Bram Stoker and Patrick McCabe). Among the many subjects that may be considered are: Jekyll/I Holme dichotomy; the nature of the gothic horror; the role of the "mad" narrator; the theme of the child; the puzzle of the "serial" killer (e.g., the Ripper murderers).
FORMAT: Lecture/discussion
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.
EXCLUSION: ENGL 2216.06, ENGL 2216.06

ENGL 2227.03: Tragedy.
The course studies a representative selection of texts from various historical periods in order to arrive at an understanding of the meaning of tragedy. Various definitions of tragedy will be encountered along with each possible question as to how it has changed over time, and what is tragically.
FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1040.06; or any two of ENGL 1010.03, 1020.03, 1040.03, or THEA 1000.06; or the King's FYP
CROSS-LISTING: THEA 2227.03
EXCLUSION: ENGL 2226.06

ENGL 2230.03: Satire.
A survey of historical satire from early invective to contemporary caricature. This course closely examines conventional forms of verse and prose satire but attention is also paid to the visual and dramatic. Students are introduced to a wide range of specific modes (e.g., the character sketch, mock emperor, travesty, parody, lampoon) and satire's many uses within various national contexts (e.g., Roman, English, American, Canadian).
FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1090.03, 1100.03; or THEA 1000.06; or the King's FYP
EXCLUSION: ENGL 2226.00

ENGL 2231.03: Foundations of Science Fiction.
Various genres have been offered for science fiction: from classical Greek texts, to Galileo’s “Dialogue”, to foundational, to twentieth-century pulp publications. This course will read science fiction from these various genres through to the so-called Golden Age of Science Fiction in the 1950s. Authors could include Mary Shelley, H.G. Wells, and Hugo Gernsback.
FORMAT: Lecture
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.
EXCLUSION: ENGL 2233.06

ENGL 2232.03: Contemporary Science Fiction.
This course will study science fiction from the Golden Age of the 1940s and 50s to the most recent developments. Such schools and areas as the New Wave, cyberpunk, and postcolonial SF are among the topics that could be explored, as are developments in film, television, and new media.
FORMAT: Lecture
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.
EXCLUSION: ENGL 2233.06

ENGL 2233.03: Tolkien: Fantasy and Medievalism.
This course will examine the fantasy writings of J.R.R. Tolkien. Topics could include the development of high fantasy, the question of escapes, alternate worlds, heroes and anti-heroes, Norse and medieval mythology, language creation, Tolkien's medieval scholarship, the Inklings, Tolkien and Christianity, and Tolkien's work in the context of twentieth-century wars and politics.
FORMAT: Lecture
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.
CROSS-LISTING: THEA 2233.03

ENGL 2234.03: Outlaw Tales.
This course will study science fiction from these various origins through to the so-called Golden Age of Science Fiction in the 1950s. Authors could include Mary Shelley, H.G. Wells, and Hugo Gernsback.
FORMAT: Lecture
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.
EXCLUSION: ENGL 2233.06

ENGL 2235.03: Fantasy after Tolkien.
This course will read science fiction from these various origins through to the so-called Golden Age of Science Fiction in the 1950s. Authors could include Mary Shelley, H.G. Wells, and Hugo Gernsback.
FORMAT: Lecture
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.
EXCLUSION: ENGL 2233.06

ENGL 2236.03: Fantasy after Tolkien.
This course will examine writings in the fantasy genre of the later twentieth century. Authors could include Ursula Le Guin, Guy Gavriel Kay, Charles de Lint, Susan Cooper, R. Scott Bakker, J. K. Rowling, and Philip Pullman.
FORMAT: Lecture
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.
EXCLUSION: ENGL 2233.06

ENGL 2237.03: Science Fiction.
This course will study science fiction from these various origins through to the so-called Golden Age of Science Fiction in the 1950s. Authors could include Mary Shelley, H.G. Wells, and Hugo Gernsback.
FORMAT: Lecture
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.
EXCLUSION: ENGL 2233.06

ENGL 2238.03: Outlaw Tales.
This course will study the romantic outlaw of fiction, poetry and film. Texts may range from sagas to Robin Hood ballads to highwayman tales to modern Westerns. Topics include images and tropes for the outlaw; the question of why the figure of the outlaw is appealing to law-abiding readers; the way the literary and romantic outlaw compares with the real-life outlaws of the time; or the role of the outlaw as a commentator on ‘legal’ society.
FORMAT: Lecture/discussion
PREREQUISITE: Any class or combination of classes that satisfies the College of Arts and Sciences Writing Requirement.
CROSS-LISTING: THEA 2238.03

ENGL 2239.03: Shakespeare and his Contemporaries on Film.
This course will study the adaptations of Shakespeare and his contemporaries in the medium of cinema, focusing on the differences between theatre and cinema, the process of textual adaptation, the updating of classic stories to modern settings, and the close analysis of the performer's choices.
FORMAT: Lecture/seminar
PREREQUISITE: Experience in Shakespeare at any level OR experience in Film Studies at any level.
CROSS-LISTING: THEA 2239.03

ENGL 2240.03: Science Fiction.
English Courses at the 3000 Level

Courses at the 3000 level are usually smaller than 2000-level courses, and are likewise open to any student above the first year, with the necessary prerequisites. They include a group of literary methods courses as well as a sequence of courses covering the chronological sweep of English literary history. Any one of the three methods courses offered each year (3000.03, 3001.03, 3002.03) will fulfill the requirement for the English minor, major, or honors programs. Most 3000-level courses require a first-year English credit as prerequisite, but ENGL 3112.03, ENGL 3201.03, and 3310.03 will accept any university Writing Requirement credit. As these courses are not offered every year, students should consult the English department website for detailed descriptions of this year's courses.

ENGL 3000.03: Close Reading.
This half-credit course is intended to give students the tools and vocabulary for the close reading of literary texts, both prose and poetry. FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

ENGL 3001.03: History of Literary Criticism.
A survey of major statements in literary theory from Antiquity to the twentieth century. Topics to be considered may include the value of literature, the relation of fiction to reality, the nature of creativity, the function of genres and conventions, and the role of the critic. FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP
EXCLUSION: ENGL 3244.06

ENGL 3002.03: Contemporary Critical Theory.
A survey of major issues and schools in recent literary theory. This course will define the merits of various critical approaches to literature, including formalism, Marxism, feminism, psychoanalysis, structuralism, deconstruction, new historicism, and cultural studies. FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP
EXCLUSION: ENGL 3244.06

ENGL 3003.03: Middle English Tales.
An introduction to the study of Middle English literature in Middle English by way of Geoffrey Chaucer’s collection of tales told by a mixed crowd of people on pilgrimage, from alchemist knight and poor man to bawdy wife and drunken cook. FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP
EXCLUSION: ENGL 3244.06

ENGL 3005.03: Canterbury Tales.
A survey of poetic and prose from the mid- to late-eighteenth century. This course offers students the chance to interpret poems by one of the most esoteric English writers (John Donne) and to argue about the view of human nature encoded in one of the most cherished English texts (Paradise Lost). In addition, there will be opportunities to study devotional poetry (Georges Herbert), life-writing (Sir Thomas Browne), women’s writing (Lady Mary Wortley), political writing (Andrew Marvell), or even private writing (by Siddons or Byron, for example). FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP
EXCLUSION: ENGL 3244.06

ENGL 3011.03: Renaissance Poetry and Culture II: Donne to Milton.
This course will explore the richness and strangeness of some of the playwrights too often obscured by Shakespeare’s shadow. Between the opening of the first professional playhouse in London (1576) and the closing of the theatre by Parliament (1641), the Globe was only one of many venues catering to an avid theatre-going public, and the first English play by a woman was circulated in manuscript. Playwrights to be included may include Christopher Marlowe, Ben Jonson, Thomas Middleton, John Webster, Elizabeth Cary, and John Ford. FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP
CROSS-LISTING: THEA 3103.03

ENGL 3017.03: English Poetry and Prose, 1660-1740.
The poetry and prose from the Restoration and early eighteenth-century contain much in the way of sex and jokes. The course studies works by authors such as Dryden, Rochester, John F. Scott, Swift, and Pope. Students are introduced to popular forms (heroic couplet, satire, conversational poems, essay, epistle, political allegory) and to the many changes that shaped the literature of the period, notably the decline of the court, the emergence of modern capitalism, and the rise of professional authorship. FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP
EXCLUSION: ENGL 3244.06

ENGL 3019.03: Poetry and Prose, 1740-1789.
A survey of poetry and prose from the mid- to late-eighteenth century. This course studies the works of Samuel Johnson and his circle, the poets of sensibility, the Bluestockings, and many other authors. It covers a wide range of genres and movements (odes, imitation, sonnets, pastoral poetry, aesthetic treatises, fables) in light of contemporary social and political events, from the growth of democracy at home to historic revolutions abroad. FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP
EXCLUSION: ENGL 3244.06

ENGL 3020.03: English Drama, 1660-1800.
A survey of plays produced during the Restoration and eighteenth-century. This course introduces students to the period’s various dramatic forms, the literary influences and controversies, and the many women and men who pursued for the stage. FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King’s FYP
CROSS-LISTING: THEA 3103.03
EXCLUSION: ENGL 3253.06

180 English
ENGL 3022.03: English Fiction to 1820. A survey of the rise of the English novel from Behn to Austen. This course will consider works by second-rate novelists, some well-known and some not so well-known, and introduce students to a wide range of early prose narratives, such as amatory fiction, the fictional memoir, the roman à clef, the epistolary novel, and various comic and sentimental works. FORMAT: Lecture/discussion

PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

EXCLUSION: ENGL 3023.03

ENGL 3023.03: Victorian Poetry. This course explores Victorian poetry in the context of the cultural, social, political, artistic and religious transformations that occurred between the 1830s and 1900. Authors studied will include Tennyson, Robert and Elizabeth Barrett Browning, Matthew Arnold, and the Pre-Raphaelite poets. Specific emphases will vary, but recurrent themes will include the poet's role in an increasingly technological and scientific culture, the challenges faced by women poets, experimentation with new poetic forms like the dramatic monologue, and the crisis of faith presented by new modes of intellectual inquiry. FORMAT: Lecture/discussion

PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

EXCLUSION: ENGL 3025.06

ENGL 3025.06: Romantic Era I: The Satanic and the Sublime. Focusing primarily on the early 19th century, this class will explore the interactions and reactions of reform and conservatism, evil and the sublime, tradition and modernity, across genres. Authors may include Jane Austen, William Blake, Byron, Samuel Taylor Coleridge, Felicia Hemans, John Keats, Letitia Landon, the Skellys, and the wordsworths. FORMAT: Lecture/discussion

EXCLUSION: ENGL 3025.06

ENGL 3027.03: Romantic Era II: The Satanic and the Sublime. Focusing primarily on the early 19th century, this class will explore the interactions and reactions of reform and conservatism, evil and the sublime, tradition and modernity, across genres. Authors may include Jane Austen, William Blake, Byron, Samuel Taylor Coleridge, Felicia Hemans, John Keats, Letitia Landon, the Skellys, and the wordsworths. FORMAT: Lecture/discussion

EXCLUSION: ENGL 3025.06

ENGL 3040.03: Irish Literature. 1700-1900: Satire, Sentiment, and the Gothic. This course will survey Irish writing in English from 1700 to 1900 and emphasize the form and the subject matter of fiction as they transformed the novel from a genre expressed and serious works. Specific emphases will vary, but recurrent themes will include the poet's role in an increasingly technological and scientific culture, the challenges faced by women poets, experimentation with new poetic forms like the dramatic monologue, and the crisis of faith presented by new modes of intellectual inquiry. FORMAT: Lecture/discussion

PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

EXCLUSION: ENGL 3040.06

ENGL 3061.03: American Literature to 1865. A survey of the major writers of the United States up to the end of the Civil War. This period includes the earliest practitioners of the modern short story, radically inventive poets, early "nature writers," experimental novelists, and various forms of autobiography. FORMAT: Lecture/discussion

PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

EXCLUSION: ENGL 3062.03

ENGL 3062.03: American Literature, 1865-1914. A survey of the major writers of the United States from the Civil War to the beginning of the First World War, with an emphasis on the realist novel. Major figures include Mark Twain, Henry James, Edith Wharton, Stephen Crane. FORMAT: Lecture/discussion

PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

EXCLUSION: ENGL 3070.03

ENGL 3070.03: Twentieth-Century African American Novel. While it is obvious that several of the novelists on this reading list might well appear in other courses, it is a worthwhile exercise for students to engage in a conversation about these and other texts by African American novelists in the context of African American novels. That context will be the focus of this course: Such a comparatively detailed focus brings with it such questions as does it matter that these novels were written by African Americans? What do we gain by considering these texts in this specific national and ethnic-cultural context? Are the texts representative, and if so, what and in what ways? Do these texts reinforce or complicate (or both) notions such as the African American experience? FORMAT: Lecture/discussion

PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

EXCLUSION: ENGL 3086.03

ENGL 3086.03: Post-Colonial Literatures. This course will allow you to read literature from the former British colonies, as well as some of the influential theorists who are helping to shape the evolving field of postcolonial studies. Our purpose will be to gain familiarity with a selection of the seminal texts, arguments, and debates that characterize this diverse and vibrant area of research and study. We will also explore how post-colonial theories and critiques complicate and reinforce or complicate (or both) notions such as the African American experience. FORMAT: Lecture

PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

EXCLUSION: ENGL 3085.06

ENGL 3087.03: Literature of the Asian Diaspora. This course will allow you to read literature from the former British colonies, as well as some of the influential theorists who are helping to shape the evolving field of postcolonial studies. Our purpose will be to gain familiarity with a selection of the seminal texts, arguments, and debates that characterize this diverse and vibrant area of research and study. We will also explore how post-colonial theories and critiques complicate and reinforce or complicate (or both) notions such as the African American experience. FORMAT: Lecture

PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

EXCLUSION: ENGL 3085.06

ENGL 3088.03: Creative Writing: Poetry I. This course is for students interested in writing poetry. Various skills will be developed through the sharing of individual and collaborative expression and the understanding of the movement from first draft to finished version of the poem. FORMAT: Writing Workshop

PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

EXCLUSION: ENGL 3098.03

ENGL 3098.03: Creative Writing: Poetry I. This course is for students interested in writing poetry. Various skills will be developed through the sharing of individual and collaborative expression and the understanding of the movement from first draft to finished version of the poem. FORMAT: Writing Workshop

PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

EXCLUSION: ENGL 3098.03

ENGL 3099.03: Creative Writing: Fiction I. This course is for students interested in writing short fiction and novels. It will include the study of literature as a basis for learning skills necessary for the craft. Some aspects of the course will involve theory but the primary focus will be on the process of writing — everything from the basics of getting started to the process
ENGL 3112.03: Writing Theory.
This course considers a range of approaches to writing. Students read widely in influential theoretical texts, and participate in ongoing conversations about writing, and heighten their understanding of the composition process. Writing assignments and writing centered, the course is ideal for anyone interested in writing and critical thinking.
FORM: Lecture/discussion
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.
CROSS-LISTING: ASST 3112.03
EXCLUSION: ASST 3110.01
ENGL 3113.03: Writing Practice.
This course puts writing theory into practice. As part of their course work, students gain valuable experience working as writing tutors and/or assistant editors for an academic journal. The course is ideal preparation for careers in teaching or publishing. Students will be expected to participate fully in the course through reading, writing, and discussion.
FORM: Writing Workshop
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or CRWR 2000.06; or King's FYP.
ENGL 3203.03: History of the English Language.
This course introduces students to the study of the history of English, tracing the story from the origins of the language in proto-Germanic to its current abundance of variation around the globe. Most emphasis will be placed on the development of English in our earlier literature from Old English to Early Modern English, and on its current manifestations in Canada.
FORM: Lecture/discussion
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement.
EXCLUSION: ENGL 3212.03
ENGL 3220.03: American Literature of the Earlier Twentieth Century.
An introduction to American literature from the beginning of the twentieth century until the end of the second world war.
FORM: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP.
ENGL 3221.03: American Literature of the Later Twentieth Century.
An introduction to American literature from the middle of the twentieth century until the end.
FORM: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP.
ENGL 3231.03: Modern Canadian Literature.
The historical period covered in this course extends from the end of World War I through the decade following World War II, a period during which Canada witnessed the formation of a modern literature in English. Vowed aesthetic responses to ideas of the modern, the processes and technologies of modernization, and the conditions of social, cultural, economic, and political modernity will be addressed.
FORM: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP.
CROSS-LISTING: CANA 3231.03
ENGL 3234.03: British Literature of the Earlier Twentieth Century.
An introduction to British literature from the beginning of the twentieth century roughly to the end of the second world war.
FORM: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP.
ENGL 3235.03: British Literature of the Later Twentieth Century.
An introduction to British literature from the middle of the twentieth century until the end.
FORM: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP.
ENGL 3238.03: Fiction of the Earlier Twentieth Century.
A selection of fiction from the beginning of the twentieth century to approximately the end of the second world war. Texts will be subject to the instructor's preferences.
FORM: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP.
EXCLUSION: ENGL 3209.06
ENGL 3239.03: Fiction of the Later Twentieth Century.
An introduction to fiction in English from the middle of the twentieth century to the end. Texts will be subject to the instructor's preferences.
FORM: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP.
EXCLUSION: ENGL 3209.06
ENGL 3240.03: Drama of the Earlier Twentieth Century.
An introduction to major developments in drama from Ibsen to Brecht. The course will explore the diversity of dramatic styles and theatrical movements, as playwrights respond to and react against the nineteenth century's traditions and their own changing times. In addition to Ibsen and Brecht, authors may include Strindberg, Chekhov, Shaw, Synge, Pirandello, and O'Neill.
FORM: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP.
EXCLUSION: ENGL 3241.06
ENGL 3241.03: Drama of the Later Twentieth Century.
This course focuses on a selection of plays ranging from Abstract art works to present-day texts, including scripts by Canadian dramatists. The focus will be the growth of contemporary theatrical movements, such as the kitchen-sink drama of the 1950s and the “In-Yer-Face” theatre of the 1990s. Playwrights may include Beckett, Jonson, Osborne, Albee, Shepard, Churchill, Kane, and Tremblay.
FORM: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP.
ENGL 3242.03: Poetry of the Earlier Twentieth Century.
An introduction to poetry in English from the beginning of the twentieth century until the end. Texts will be subject to the instructor's preferences.
FORM: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP.
ENGL 3243.03: Poetry of the Later Twentieth Century.
An introduction to poetry in English from the middle of the twentieth century to the end.
FORM: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP.
ENGL 3245.03: The Beat Generation.
This course will examine the writing of the Beat Generation. Authors to be considered could include Jack Kerouac, Allen Ginsberg, William S. Burroughs, and Dennis Lovett, among others.
FORM: Lecture and Discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.05/06; or the King's FYP.
ENGL 3200.03: Contemporary Women Poets.
During the last few decades, an extraordinary number of powerful new women poets have appeared on the literary scene. This course focuses on selected works written by these poets, and explores the ways in which manifest ideas of "women" have been challenged by individual poets who are positioned differently by race, sexual orientation, and national identity.
FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03 or THEA 1000.06; or the King's FYP
CROSS-LISTING: CRST 3200.03
EXCLUSION: ENGL 3080.06

ENGL 3270.03: Contemporary Canadian Literature.
In this course, a variety of late twentieth-century and recent Canadian fiction and poetry texts will be studied from diverse perspectives as the following: postcolonial, postmodern, multicultural. The politics of cultural expression will be emphasized, as well as the relationship between ethics and aesthetic approaches to literature.
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP
FORMAT: Seminar/CANA 3270.03
EXCLUSION: ENGL 3233.03

ENGL 3300.03: TV: Theory and Criticism.
This course considers television as a uniquely powerful source of cultural production, presenting students with some of the theoretical questions it raises and some of the critical methods that have developed for engaging it. The course will explore the way TV mediates cultural attempts to understand the contemporary world.
FORMAT: Lecture
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

ENGL 3301.03: Graphic Novels.
This course explores the history and development of graphic novels from the early twentieth century to the present. It examines the history and formal conventions of various genres, and is particularly concerned with the cultural status of graphic novels and the relationship between verbal and visual forms.
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03; or THEA 1000.06; or the King's FYP

ENGL 3310.03: Writing in a Digital Age.
This course focuses on the analysis and production of electronic texts. Students publish their work electronically and explore emerging theories about hypertext writing and the role of visual rhetoric. Objects of study will encompass a variety of electronic genres, but will focus mainly on sites on the World Wide Web.
FORMAT: Lecture/discussion
PREREQUISITE: Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement

ENGL 3314.03: Shakespeare and his Contemporaries on Film.
This course will study the adaptation of Shakespeare and his contemporaries to the medium of cinema. Focusing on the differences between theatre and cinema, the process of textual adaptation, and the impact of cinematic stories on modern settings, and the close analysis of the performer's choices.
FORMAT: Lecture/seminar
PREREQUISITE: Experience in Shakespeare at any level OR experience in Film Studies at any level
CROSS-LISTING: THEA 3314.03
EXCLUSION: ENGL 2133.03, ENGL 2313.03

ENGL 3501.03: The Modern Theatre 1: Realism and Modernism.
From the close of WWI to the 1960s, theatrical modernists sought new artifice forms for a rapidly changing world. This course introduces students to major forms of theatrical modernism from Dada and Theatre of Cruelty through Epic Theatre and Biomechanics to absurdism, and considers their legacy for the contemporary stage.
FORMAT: Lecture and seminar
PREREQUISITE: THEA 3501.03 or Permission of the Instructor
CROSS-LISTING: THEA 3501.03
EXCLUSION: ENGL 3509.V 0/6

ENGL 3502.03: The Modern Theatre 2: High Modernism.
During the last few decades, an extraordinary number of powerful new women poets have appeared on the literary scene. This course focuses on selected works written by these poets, and explores the ways in which manifest ideas of "women" have been challenged by individual poets who are positioned differently by race, sexual orientation, and national identity.
FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1000.06; or any two of ENGL 1010.03, 1020.03, 1040.03, 1050.03, 1100.03 or THEA 1000.06; or the King's FYP
CROSS-LISTING: CRST 3502.03
EXCLUSION: ENGL 3509.V 0/6

ENGL 3509.06: English Drama: Tragedy I.
A study of the Greek tragedies, Aeschylus, Sophocles, and Euripides in English translation.
FORMAT: Seminar
EXCLUSION: CLAS 3515.03, CLAS 3730.V 0/6

ENGL 3530.03: Greek Drama: Tragedy II.
A study of the Greek tragedies, Aeschylus, Sophocles, and Euripides in English translation.
FORMAT: Seminar
EXCLUSION: CLAS 3515.03, CLAS 3730.V 0/6

ENGL 3820.03: Nabokov.
A close study of selected works by consummate twentieth century prose stylist Vladimir Nabokov - novelist, poet, critic and translator, author of notorious Lolita.
FORMAT: Lecture/discussion
CROSS-LISTING: RUSN 3820.03

ENGL 3841.03: Dante II. Purgatory and Paradise.
The course will provide a reading of the Purgatory and Paradise, the playwright's climb of the holy mountain and his ascent to the heaven up to the vision of God. This course places Dante's Divine Comedy within a critical context and furthers the study of Dante's oeuvre on the backdrop of the European Middle Ages. Each course will involve reading from the text, commentary and discussion of the readings assigned. The course is taught in English. Italian minors and majors students will be required to read the texts in Italian.
FORMAT: Lecture
PREREQUISITE: Any 2000 humanities course or instructor's permission
CROSS-LISTING: Comparative Religions 4041, ITAL 4041.03

ENGL 3916.06: Introduction to Applied Linguistics and Language Teaching.
For description of this cross-listed course, see Calendar under FREN 4016.
FORMAT: Lecture
CROSS-LISTING: FREN 4016.06

English Courses at the 4000 Level
Courses at the 4000 level are small seminars intended for third and fourth-year English majors or honours students, offering intensive, research-oriented study of special topics, particular authors or periods, national traditions, literary or cultural forms and figures. Reflecting the specialties of their instructors, their subjects change every year. Students should consult the detailed description of this year's seminars available on the English department website, and meet with an English department advisor before enrolling in one of these seminars.

Studies In Major Authors—4011—4099
Studies in Genre—4200—4299
Studies in National Literatures—4400—4499
Studies in Literary History—4600—4699
Studies in Culture and Theory—4800—4899
ENGL 4990.00: English Honours Capstone.
This course is intended for the culmination of an honours degree, to teach practices and home skills to carry forward into academic and non-academic professional realms. Emphasis will be on effective communication, both oral and written, of the student's own research, and on constructive responses, both critical and adulatory, to the research of others. The course fulfills the requirement of the College of Arts and Science at Dalhousie for an honours-qualifying examination,
with an importance equivalent to an honours thesis. It is graded pass/fail, carries no credit hours, but is a required distinguishing component of the honours degree.

**FORMAT:** Seminar

**RESTRICTION:** Admission by signature; for honours students in English

Students should consult the department website for a complete list of seminar offerings.

**IV. Creative Writing Course Descriptions**

**CRWR 2000X/Y.06: The Creative Process.**

This is a large interdisciplinary course that focuses on creativity in a wide variety of artistic and other areas of thought and expression, such as writing, painting, music, acting/directing, dancing, mathematics, medicine, and advertising.

**NOTE:** Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

**PREREQUISITE:** Any course or combination of courses that satisfies the College of Arts and Sciences Writing Requirement

**CRWR 3000.03: Creative Writing: Poetry II.**

Building on the work done in English 3098.03, this seminar will involve students in the writing and assessment of poetry, their own as well as that of their peers. The process of writing poetry from the first draft to the final version will be stressed, with attention given to the developing relationship between form and content.

**FORMAT:** Workshop

**PREREQUISITE:** ENGL 3098.03

**CRWR 3001.03: Creative Writing: Fiction II.**

Following the emphasis on short story writing in English 3099.03, this course will deal with novel writing, with attention to such matters as dramatic elements, story/plot, character development, setting, point of view, revision, and publishing.

**FORMAT:** Workshop

**PREREQUISITE:** ENGL 3099.03

**CRWR 4000X/Y.06: Creative Writing Poetry.**

Students will meet in group session during the fall term to workshop their material that will lead to the production of a full manuscript of poetry. In the winter term students will meet on an individual basis with the professor to discuss and facilitate the completion of this project.

**NOTE:** Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

**FORMAT:** Workshop

**PREREQUISITE:** CRWR 2000X/Y.06, ENGL 3098.03, CRWR 3000.03

**CRWR 4001X/Y.06: Creative Writing Fiction.**

Students will meet in group session during the fall term to workshop their material that will lead to the production of a full manuscript of fiction (short stories or novel). In the winter term students will meet on an individual basis with the professor to discuss and facilitate the completion of this project.

**NOTE:** Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

**FORMAT:** Workshop

**PREREQUISITE:** CRWR 2000X/Y.06, ENGL 3098.03, CRWR 3000.03

**CRWR 4003X/Y.06: Advanced Narrative Non-Fiction Workshop.**

Senior Creative-Writing and/or Journalism students will write and critique narrative non-fiction, a genre which enjoys a rich history and contemporary popularity. Writing techniques from various genres (e.g., character development, metaphor, dialogue) will inform the fusion of fact and fiction, research and experience, the personal and the public etc.

**NOTE:** Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

**FORMAT:** Workshop (i.e., the primary texts will be student-generated and critiqued by students and professor)

**PREREQUISITE:** Equivalent of two full credits from: CRWR 3000, CRWR 3001, THEA 3600, JOUR 3440 and 3441

**CRWR 4004.06: Advanced Creative Writing Workshop.**

Senior creative-writing students will write and critique a variety of genres, including fiction, poetry, narrative non-fiction and/or drama. A significant portion of class time will be devoted to the workshop critique of peer writing. Sustained student work on one large manuscript project will be encouraged.

**FORMAT:** Workshop (i.e., the primary texts will be student-generated and critiqued by students and professor)

**PREREQUISITE:** Equivalent of two full credits from: CRWR 3000, CRWR 3001, THEA 3600, JOUR 3440 and 3441
Environmental Studies

Contact Person: Dr. David Black
Location: Department of Political Science
Faculty of Arts and Social Sciences
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-6638

BA with Minor in Environmental Studies
See Minors in the College of Arts and Science section of this calendar (page 128).

Required Courses:
- ENVS 1000X/Y .06: Introduction to Environmental Studies
- PHIL 2480.03: Environmental Ethics
- ENVS 3200.03: Introduction to Environmental Law

BA Approved Electives in Environmental Studies:
Additions to the following lists will be made, as relevant courses become available.

Faculty of Science:
- BIOL 2060.03: Introductory Ecology
- BIOL 2601.03: The Flora of Nova Scotia
- BIOL 2605.03: Introduction to Marine Life in Nova Scotia
- BIOL 3060.03: Environmental Ecology
- BIOL 3061.03: Nature Conservation
- BIOL 3151.03: Methods in Ecology
- BIOL 4065.03: Sustainability and Global Change
- CHEM 2505.03: Environmental Chemistry
- ECON 2336.03: Regional Development
- ECON 3332.03: Resource Economics
- ECON 3335.03: Environmental Economics
- ERTH 2410.03: Environmental and Resource Geology I
- ERTH 3500.03: Geoscience Information Management
- GEOG 2800.03: Climate Change
- OCEA 2000.06: The Blue Planet
- OCEA 2900.03: Climate Change
- PHYS 1251.03: Astronomy I: The Sky and Planets
- PHYS 2300.05: Climate Change
- ENV 3010.03: Analytical Environmental Science and Social Responsibility
- ENV 3050.03: Environmental Science Internship
- ENV 3230.03: Material and Environmental Law for Scientists
- ENV 3231.03: Environmental Botany, Plants and Civilization
- ENV 3303.03: Geoscience Information Management
- ENV 3494.03: Human Health and Sustainability
- ENV 3501.03: Environmental Problem Solving I
- ENV 3502.03: Environmental Problem Solving II: The Campus as a Living Laboratory

Other Electives
- PLAN 2001.03: Landscape Analysis
- PLAN 3001.03: Landscape Ecology
- PLAN 3002.03: Reading the City
- PLAN 3003.03: Cities and the Environment in History
- PLAN 3103.03: Urban Ecology
- PLAN 3203.03: Landscape Design
- PLAN 4006.03: Transportation Planning

In any given year, special and variable topics courses may be approved for credit towards the minor requirements when the content warrants. See the program director for information.
Environment, Sustainability and Society

Location: 1459 LeMarchant St., Room 1401
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-4581
Fax: (902) 494-8923
Email: sustainability@dal.ca
Website: www.ess.dal.ca

I. Degree Programs

The College of Sustainability offers a BA Double Major and Combined Honours with any major/honours subject in the Faculty of Arts and Social Sciences or the Faculty of Science. For complete details about the College, its programs and courses please see the College of Sustainability section on page 44 of the Calendar.

A. BA, Double Major/Combined Honours, Environment, Sustainability and Society

i. Environment, Sustainability and Society as Subject A

Subject A: Environment, Sustainability and Society
• SUST 1000.06 (one full credit in fall term)
• SUST 1001.06 (one full credit in winter term)
• SUST 2000.06 (one full credit in fall term)
• SUST 2001.06 (one full credit in winter term)
• SUST 3000.03
• SUST 3502.03
• SUST 4000X/Y .06

For Double Major:
• three full credits from the approved list of ESS Electives (at least two credits outside Subject B)

For Combined Honours:
• two full credits from the approved list of ESS Electives (at least one credit outside Subject B)
• SUST 4900X/Y .06
• Cumulative GPA in Honours subject courses above 1000 level of 3.3, with no individual grade less than C

Subject B: Any Major/Honours subject in the Faculty of Arts and Social Sciences or the Faculty of Science
Please see subject B calendar entry and Academic Advisor for details.

ii. Environment, Sustainability and Society as Subject B

Subject A: Any Major/Honours subject in the Faculty of Arts and Social Sciences or the Faculty of Science

• SUST 1000.06 (one full credit in fall term)
• SUST 1001.06 (one full credit in winter term)
• SUST 2000.06 or SUST 2001.06
• one additional full credit in SUST at the 2000 level or above
• three full credits from the approved list (at least two credits outside Subject A)
• at least two full credits must be at the 3000 level or above

B. Minor in Environment, Sustainability and Society

• a minimum of three full credits (4.5 credit hours) and a maximum of 4.5 credits at the 2000 level or above in SUST courses.
• Prerequisites: SUST 1000.06 and SUST 1001.06

Environment, Sustainability and Society

Location: 1459 LeMarchant St., Room 1401
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-4581
Fax: (902) 494-8923
Email: sustainability@dal.ca
Website: www.ess.dal.ca

I. Degree Programs

The College of Sustainability offers a BA Double Major and Combined Honours with any major/honours subject in the Faculty of Arts and Social Sciences or the Faculty of Science. For complete details about the College, its programs and courses please see the College of Sustainability section on page 44 of the Calendar.

A. BA, Double Major/Combined Honours, Environment, Sustainability and Society

i. Environment, Sustainability and Society as Subject A

Subject A: Environment, Sustainability and Society
• SUST 1000.06 (one full credit in fall term)
• SUST 1001.06 (one full credit in winter term)
• SUST 2000.06 (one full credit in fall term)
• SUST 2001.06 (one full credit in winter term)
• SUST 3000.03
• SUST 3502.03
• SUST 4000X/Y .06

For Double Major:
• three full credits from the approved list of ESS Electives (at least two credits outside Subject B)

For Combined Honours:
• two full credits from the approved list of ESS Electives (at least one credit outside Subject B)
• SUST 4900X/Y .06
• Cumulative GPA in Honours subject courses above 1000 level of 3.3, with no individual grade less than C

Subject B: Any Major/Honours subject in the Faculty of Arts and Social Sciences or the Faculty of Science
Please see subject B calendar entry and Academic Advisor for details.

ii. Environment, Sustainability and Society as Subject B

Subject A: Any Major/Honours subject in the Faculty of Arts and Social Sciences or the Faculty of Science

• SUST 1000.06 (one full credit in fall term)
• SUST 1001.06 (one full credit in winter term)
• SUST 2000.06 or SUST 2001.06
• one additional full credit in SUST at the 2000 level or above
• three full credits from the approved list (at least two credits outside Subject A)
• at least two full credits must be at the 3000 level or above

B. Minor in Environment, Sustainability and Society

• a minimum of three full credits (4.5 credit hours) and a maximum of 4.5 credits at the 2000 level or above in SUST courses.
• Prerequisites: SUST 1000.06 and SUST 1001.06

Environment, Sustainability and Society

Location: 1459 LeMarchant St., Room 1401
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-4581
Fax: (902) 494-8923
Email: sustainability@dal.ca
Website: www.ess.dal.ca

I. Degree Programs

The College of Sustainability offers a BA Double Major and Combined Honours with any major/honours subject in the Faculty of Arts and Social Sciences or the Faculty of Science. For complete details about the College, its programs and courses please see the College of Sustainability section on page 44 of the Calendar.

A. BA, Double Major/Combined Honours, Environment, Sustainability and Society

i. Environment, Sustainability and Society as Subject A

Subject A: Environment, Sustainability and Society
• SUST 1000.06 (one full credit in fall term)
• SUST 1001.06 (one full credit in winter term)
• SUST 2000.06 (one full credit in fall term)
• SUST 2001.06 (one full credit in winter term)
• SUST 3000.03
• SUST 3502.03
• SUST 4000X/Y .06

For Double Major:
• three full credits from the approved list of ESS Electives (at least two credits outside Subject B)

For Combined Honours:
• two full credits from the approved list of ESS Electives (at least one credit outside Subject B)
• SUST 4900X/Y .06
• Cumulative GPA in Honours subject courses above 1000 level of 3.3, with no individual grade less than C

Subject B: Any Major/Honours subject in the Faculty of Arts and Social Sciences or the Faculty of Science
Please see subject B calendar entry and Academic Advisor for details.

ii. Environment, Sustainability and Society as Subject B

Subject A: Any Major/Honours subject in the Faculty of Arts and Social Sciences or the Faculty of Science

• SUST 1000.06 (one full credit in fall term)
• SUST 1001.06 (one full credit in winter term)
• SUST 2000.06 or SUST 2001.06
• one additional full credit in SUST at the 2000 level or above
• three full credits from the approved list (at least two credits outside Subject A)
• at least two full credits must be at the 3000 level or above

B. Minor in Environment, Sustainability and Society

• a minimum of three full credits (4.5 credit hours) and a maximum of 4.5 credits at the 2000 level or above in SUST courses.
• Prerequisites: SUST 1000.06 and SUST 1001.06

Environment, Sustainability and Society

Location: 1459 LeMarchant St., Room 1401
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-4581
Fax: (902) 494-8923
Email: sustainability@dal.ca
Website: www.ess.dal.ca

I. Degree Programs

The College of Sustainability offers a BA Double Major and Combined Honours with any major/honours subject in the Faculty of Arts and Social Sciences or the Faculty of Science. For complete details about the College, its programs and courses please see the College of Sustainability section on page 44 of the Calendar.

A. BA, Double Major/Combined Honours, Environment, Sustainability and Society

i. Environment, Sustainability and Society as Subject A

Subject A: Environment, Sustainability and Society
• SUST 1000.06 (one full credit in fall term)
• SUST 1001.06 (one full credit in winter term)
• SUST 2000.06 (one full credit in fall term)
• SUST 2001.06 (one full credit in winter term)
• SUST 3000.03
• SUST 3502.03
• SUST 4000X/Y .06

For Double Major:
• three full credits from the approved list of ESS Electives (at least two credits outside Subject B)

For Combined Honours:
• two full credits from the approved list of ESS Electives (at least one credit outside Subject B)
• SUST 4900X/Y .06
• Cumulative GPA in Honours subject courses above 1000 level of 3.3, with no individual grade less than C

Subject B: Any Major/Honours subject in the Faculty of Arts and Social Sciences or the Faculty of Science
Please see subject B calendar entry and Academic Advisor for details.

ii. Environment, Sustainability and Society as Subject B

Subject A: Any Major/Honours subject in the Faculty of Arts and Social Sciences or the Faculty of Science

• SUST 1000.06 (one full credit in fall term)
• SUST 1001.06 (one full credit in winter term)
• SUST 2000.06 or SUST 2001.06
• one additional full credit in SUST at the 2000 level or above
• three full credits from the approved list (at least two credits outside Subject A)
• at least two full credits must be at the 3000 level or above

B. Minor in Environment, Sustainability and Society

• a minimum of three full credits (4.5 credit hours) and a maximum of 4.5 credits at the 2000 level or above in SUST courses.
• Prerequisites: SUST 1000.06 and SUST 1001.06
European Studies

I. Introduction

The European Studies program at Dalhousie is designed to guide students to a multidisciplinary understanding of contemporary Europe. It is not housed in any one department but is a combined effort of most departments in the Faculty of Arts and Social Sciences and the University of King’s College. It encourages students to develop a broad perspective on Europe as seen through history and politics, literature and ideas, and fine arts, with special emphasis placed on acquisition of language skills. There is an Honours program and a 20 credit Major. Because it is already a multidisciplinary program, European Studies cannot be combined with other subjects to form a combined honours degree.

II. Degree Programs

A. BA Honours in European Studies

Students must meet the faculty requirements for honours.

Year I

A student would normally take ten half-credit courses in the first year, meeting the distribution requirements of the BA. These courses include:

- a writing requirement course
- a history and politics course
- a language other than English
- a social sciences course
- a natural science course

Notes: Completion of the King’s College Foundation Year Program satisfies the first-year requirements for European Studies, with the exception of the language course and the natural sciences course. Some students may wish to take another “second language” course in the first year, and postpone one of the other courses until a later year.

Years II to IV

The program consists of 30 further half-credit courses including the second year core course and an Honours project. The general requirements for the program are:

- Courses in two contemporary European languages other than English are required. One of these languages is studied up to 3000/4000 level (normally two half credits each year). The minimum requirement for the other language is two half credits at the first year level, though students are strongly encouraged to take advanced courses in both languages.
- Students take 22-26 half-credit courses with significant European content. At this is a multidisciplinary program, no more than 10 half-credit courses above the 3000 level may be taken from one department. No fewer than 12 half-credit courses must be taken from two other departments. These may include courses from a language department to fulfill the language requirement, or one of the King’s Honours programs. At least six half-credit courses must be at the 3000 level or above, taken from at least two different departments. Courses taken during a study abroad year will need to be counted in the above mix.
- EURO 2101.03, EURO 2102.03
- Students should seek advice from the European Studies Coordinator, who will strive to ensure that courses are included from each of the following areas:
  1) History and Politics:
     - Approved ES courses in the departments of History, Political Science, Sociology and Social Anthropology, Economics, Commerce
  2) Literature and Ideas:
     - Approved ES courses in the departments of Classics, English, French, German, Italian, Philosophy, Religious Studies, Russian Studies, Spanish
  3) Fine Arts:
     - Approved ES courses in the departments of Music, Theatre, and the Program in Film Studies.

Approved ES courses in Contemporary Studies, Early Modern History, and Gender and Women’s Studies may fit one or more of these groupings. Please consult a European Studies advisor.

In conjunction with the Honours project a fourth year multidisciplinary seminar is required.

A term of study in the honours program at a European university, normally in a second-language environment. A summer work term in Europe is encouraged.

B. BA (20 credit) Major

Year I

A student would normally take ten half-credit courses in the first year, meeting the distribution requirements of the BA. These courses include:

1. a writing requirement course
2. HIST 1004X/Y.06 (European History), or an equivalent course in a later year
3. a language other than English
4. a social sciences course
5. a natural science course

Note: Completion of the King’s College Foundation Year Program satisfies the first-year requirements for the European Studies 20 credit Major, with the exception of the language course and the natural science course.

Year II to IV

- After the first year, students take a minimum of 18 half-credit courses from the approved list of courses with significant European content.
- No more than eight of these may be taken in any one department, and at least six must be taken in two other departments.
- At least six half-credit courses should be at the 3000 level or above, taken from at least two different departments.
- The 4000 level multidisciplinary seminar and the second year core course are also required.

Students should aim, with help from the European Studies Coordinator, for a balance in their courses to reflect the three general areas outlined above.

European Studies 187
III. Course Descriptions

EURO 2101.03: Europe: Ideas, Culture and Society to 1900
A multidisciplinary introduction to European Studies emphasizing the period to 1900. Courses look at the interconnecting themes among literature, the arts, philosophy and society in Europe.
FORMAL: Lecture/discussion
PREREQUISITE: Completion of at least two first-year courses from FASS departments, or the King's Foundation Year Program.

EURO 2102.03: Europe: Ideas, Culture and Society from 1900 to the Present
A multidisciplinary introduction to European Studies beginning in the 20th century. Courses look at the interconnecting themes among literature, the arts, philosophy and society in contemporary Europe.
FORMAL: Lecture/discussion
PREREQUISITE: Completion of at least two first-year courses from FASS departments, or the King's Foundation Year Program. Completion of EURO 2101.03 will ideally precede registration for this course.

EURO 3999.03: Independent Study
Individually directed research and writing, supervised by a faculty member. This course is taught only by special arrangement between individual students and individual instructors. Signature required.
FORMAL: Independent study with a professor
PREREQUISITE: Restricted to 3rd year European Studies Advanced Majors and Honours students.

EURO 4510.06: European Studies Seminar
Discussion of readings and presentations on European Studies topics. The topics for the seminar vary each year. The course emphasizes a broad multidisciplinary perspective on European Studies.
FORMAL: Restricted to 4th year European Studies Honours and Advanced Major students.

EURO 4512.03: European Studies Seminar
Discussion of readings and presentations on European Studies topics. The topics for the seminar vary each year. The course emphasizes a broad multidisciplinary perspective on European studies.
PREREQUISITE: Restricted to 4th year European Studies Honours and Advanced Major students.
EXCLUSION: EURO 4510.06XY

EURO 4800.06: Honours Essay in European Studies.
EURO 4801.03: Honours Essay in European Studies.
RESTRICTION: Honours Student in their final year of study

EURO 4802.03: Honours Essay in European Studies.
RESTRICTION: Honours Student in final year of study

European Studies Approved Courses
Note: Students should note that some courses may have prerequisites or other departmental restrictions, and some courses may not be offered in every year. Other courses, not on this list, may be appropriate. Please consult an ES Advisor.

Approved Courses
Classics

Religious Studies

- RELS 1021.03: Introduction to Western Religions
- RELS 1200.06: Classical
- RELS 2002.03: Christianity
- RELS 2021.03: Nature, the Human, Community and the Divine in the Pre-Modern West
- RELS 2026.03: Paganism
- RELS 2207.03: Magic Religion and Philosophy
- RELS 2203.03: Philosophy and God
- RELS 2202.03: Catholicism
- RELS 2201.03: Eastern Religions

- RELS 4519.03: Meetings Between Hellenism, Judaism and Islam until the Renaissance
- RELS 3501.03: Philosophy on Trial
- RELS 3381.03: Gods, Beasts and the Political Animal
- RELS 3380.03: Medieval Church
- RELS 3381.03: Medieval Philosophy from Augustine to Aquinas
- RELS 3382.03: Medieval Philosophy from Aquinas to Anselm
- RELS 3411.03: Augustine’s Confessions I
- RELS 3412.03: Augustine’s Confessions II
- RELS 3413.03: St. Augustine on the Trinity Part I
- RELS 3901.06: Neoplatonism
- RELS 4510.06: Medieval Interpreters of Aristotle

Contemporary Studies

- CTMP 2120.03: Wagner
- CTMP 2303.03: Narrative and Meta-Narrative
- CTMP 3000.06: Science and Culture
- CTMP 3190.03: Stoic
- CTMP 3192.03: Wittgenstein
- CTMP 3251.03/3252.03: The Holocaust
- CTMP 3410.03: Studies in Contemporary Social and Political Thought in the 20th Century
- CTMP 4001.06: Deconstruction
- CTMP 4161.03: Freud, Lacan and the Critique of Psychoanalysis
- CTMP 4002.03: French Feminist Theory
- CTMP 4410.03: Contemporary Social and Political Thought

Early Modern Studies

All courses
Economics
- ICON 2219.03: Europe and Centre: From Common Market to European Union
- ICON 2229.03: European Economic History

English
- ENGL 2001.03: British Literature to 1800
- ENGL 2002.03: British Literature after 1800
- ENGL 2018.03: Arthur
- ENGL 2020.03: Survey of Medieval Literature
- ENGL 2024.03: Short Poems in English
- ENGL 2025.03: Literature, Health and Healing
- ENGL 2024.03: The Short Story
- ENGL 2060.03: Mystery and Detective Fiction
- ENGL 2090.03: Literature and Propaganda
- ENGL 2080.03: Images and Texts
- ENGL 2214.06: Shakespeare
- ENGL 2215.03: Gothic fiction
- ENGL 2221.03: Fictions of Development
- ENGL 2220.03: Tragedy
- ENGL 2220.03: Satire
- ENGL 2231.03: Foundation of Science Fiction
- ENGL 2233.03: Tolkien: Fantasy and Medievalism
- ENGL 2301.03: History of Literary Criticism
- ENGL 3001.03: Contemporary Critical Theory
- ENGL 3005.03: Camus: Tales
- ENGL 3007.06: Old English
- ENGL 3008.03: Introduction to Nordic Sags
- ENGL 3010.03/3011.03: Renaissance Poetry and Culture II
- ENGL 3015.03: Renaissance Drama
- ENGL 3017.03: English Poetry and Prose, 1600-1740
- ENGL 3019.03: Poetry and Prose, 1740-1789
- ENGL 3020.03: English Drama, 1600-1800
- ENGL 3022.03: English Fiction to 1820
- ENGL 3023.06: Literature of the Romantic Era 1789-1832
- ENGL 3029.03: Victorian Poetry
- ENGL 3031.03: 19th Century Fiction from Austen to Dickens
- ENGL 3032.03: 19th Century Fiction from Dickens to Hardy
- ENGL 3034.03: British Literature of the Earlier Twentieth Century
- ENGL 3050.06: British Literature of the Later Twentieth Century
- ENGL 3051.03: The Modern Theatre I: Realism and Responses
- ENGL 3052.03: The Modern Theatre II: High Modernism
- ENGL 3080.03: Nabokov
• HIST 4639.03: Britain, Appeasement and the Origins of World War II
• HIST 4106.03: Topics in Early Modern English History
• HIST 4105.03: English Civil War
• HIST 4060.03: Topics in the Civilization of Baroque Italy
• HIST 4003.03: Medieval Civilization
• HIST 3116.03: Advanced Seminar in British History
• HIST 3114.03: Britain from Second World War to Thatcher
• HIST 3113.03: Britain in the Age of the First World War
• HIST 3112.03: England 1867-1914
• HIST 3108.03/3109.03: Topics in the Social and Cultural History of England
• HIST 3111.03: Britain from Second World War to Thatcher
• HIST 3110.03: Advanced Seminar in British History
• HIST 4001.03: Medieval Civilization
• HIST 4000.03: Topics in the Civilization of Baroque Italy
• HIST 4103.03: English Civil War
• HIST 4018.03: Topics in Early Modern English History
• HIST 4019.03: Britain: Appropriation and the Origins of World War II

Italian Studies
All courses

Music
• MUSC 1201.05: Music Theory I
• MUSC 1222.05: Music Theory II
• MUSC 1322.05: Music History I
• MUSC 1353.05: Music History II
• MUSC 2221.05: Music Theory III
• MUSC 2222.05: Music Theory IV
• MUSC 2322.05: Music History III
• MUSC 2323.05: Music History IV
• MUSC 3066.05: Women, Gender and Music
• MUSC 3114.05: History of Opera
• MUSC 4285.05: Late 19th-Century Chromaticism
• MUSC 4513.05: Music since 1945
• MUSC 4515.05: Narrative Strategies in Nineteenth-Century Music
• MUSC 4516.05: Opera Studies

Philosophy
• PHIL 2410.03: Crisis and Consent
• PHIL 2420.03: Revolution and Rationality
• PHIL 3432.03: European Politics
• PHIL 3521.03: Politics of the European Union
• PHIL 3430.03: Political Philosophy of Plato
• POLI 3431.03: Machiavelli

Spanish and Latin-American Studies
All courses

History
• HIST 4105.03: Spanish and Latin American Studies
• HIST 3113.03: Britain in the Age of the First World War
• HIST 3114.03: Britain from Second World War to Thatcher
• HIST 3110.03: Advanced Seminar in British History
• HIST 3111.03: Britain from Second World War to Thatcher
• HIST 3112.03: England 1867-1914
• HIST 3110.03: Advanced Seminar in British History
• HIST 4001.03: Medieval Civilization
• HIST 4000.03: Topics in the Civilization of Baroque Italy
• HIST 4103.03: English Civil War
• HIST 4018.03: Topics in Early Modern English History
• HIST 4019.03: Britain: Appropriation and the Origins of World War II

Approved Courses with some European content (please consult European Studies Coordinator)

Economics
• ECON 3020.06: History of Economic Thought
• ECON 3031.06: Economic History

History
• HIST 4105.03: Spanish and Latin American Studies
• HIST 3113.03: Britain in the Age of the First World War
• HIST 3114.03: Britain from Second World War to Thatcher
• HIST 3110.03: Advanced Seminar in British History
• HIST 4001.03: Medieval Civilization
• HIST 4000.03: Topics in the Civilization of Baroque Italy
• HIST 4103.03: English Civil War
• HIST 4018.03: Topics in Early Modern English History
• HIST 4019.03: Britain: Appropriation and the Origins of World War II

Faculty of Arts and Social Sciences
Philosophy
- PHIL 2260.03: Philosophy of Art
- PHIL 2703.03: Philosophy in Literature
- PHIL 3170.03: Theories of Feminism
- PHIL 3660.03: Post-Modern Philosophy

Political Science
- POLI 2200.06: Comparative Politics
- POLI 2410.03: History of Political Thought I
- POLI 2420.03: History of Political Thought II
- POLI 2520.03: Introduction to World Politics
- POLI 2530.03: Introduction to Foreign Policy
- POLI 3300.03: European Politics
- POLI 3321.03: Politics of the European Union
- POLI 3380.03: Politics of Climate Change
- POLI 3401.03: Contemporary Political Thought
- POLI 3450.03: Storm and Stress
- POLI 3475.03: Democratic Theory
- POLI 3481.03: Politics through Film and Literature
- POLI 4587.03: International Political Economy
- POLI 4582.03: The European Union as a Global Actor
- POLI 4583.03: Treaty Reforms in the European Union

Sociology and Social Anthropology
- SOSA 2200.06: Family in Comparative Perspective
- SOSA 3080.03: Knowledge, Work, and Culture in the Contemporary World
- SOSA 3206.03: Ethnicity, Nationalism and Race
- SOSA 3401.03: History of Sociological Thought

Theatre
- THEA 2300.06: Film Study
- THEA 2310.06: Film Genres
- THEA 3010.06: History of Musical Theatre
- THEA 3500.06: Modern Theatre
- THEA 3600.06: Playwright in the Theatre
- THEA 3911.03: Gender in Theatre: A Cross-Cultural Survey
- THEA 4931.03: Contemporary Theatre

Film Studies

Dalhousie Contact Person
Brownlee, S., 494-1490 (shannon.brownlee@dal.ca)
Fountain School of Performing Arts, Dalhousie Arts Centre, Room 505

Film Studies Advisor
Nicol, D., 494-1491 (david.nicol@dal.ca)
Fountain School of Performing Arts, Dalhousie Arts Centre, Room 526

I. Minor in Film Studies
See Minors in the College of Arts and Science section of this calendar (page 128).
Fountain School of Performing Arts

Location: Dalhousie Arts Centre 6101 University Avenue
PO Box 15000
Halifax, NS B3H 4B2
Telephone: TBA
Fax: TBA
Email: TBA
Website: http://www.dal.ca/performingarts

Dean
Summerty-Murray, R., ATCL Dip (Trinity College, London), BA, MA (Canterbury), PhD (Toronto)

Interim Director
Gunter, J.

Undergraduate Advisor(s)
Allen, Peter (Music) and TBA (Theatre)

Professors Emeritus
Perina, P. MA, Dip. Scenography, (Prague)
Schroeder, D. P., AMus, BA, MA (Western), PhD (Carnarvon)

Professors
Gantar, J., BA, MA (Ljubljana), PhD (Toronto)
Servant, G. W., BMus (Dalhousie), MMus, DMA (Florida), Artist Diploma (Opernhaus Zurich)

Associate Professors
Allen, P., BMus (McMaster), MMus (Yale)
Bain, J., BMus (Wilfred Laurier), MA (McGill), PhD (Stony Brook)
Berger, R., BA (King’s), MA (Dalhousie), PhD (Birmingham)
Buhr, S., BA Music (Lesley University), MA (UCLA), PhD (UCLA)
Blais, J., BMus (McGill), MMus (Dalhousie), PhD (Montreal)
Djokic, P., BMus, MA (Dalhousie)
Dionne, M., CEGEP (McGill), BFA (NCSA), MEd (Fordham)
McClure, B., BA (Queen’s), BEd, MA (Toronto), Dip. (NTS)
Nicol, D., BA (Wales), MA (Birmingham), PhD (UCE)
Perina, P., Dip. Scenography (Prague)
Schroeder, D. P., AMus, BA, MA (Western), PhD (Cantab)

Professors
Allen, J., BA, MA (Ljubljana), PhD (Toronto)
Servant, G. W., BMus (Dalhousie), MMus, DMA (Florida), Artist Diploma (Opernhaus Zurich)
Swanson, M., BMus (Lethbridge), PG DipMus, Opera Program (Gulhail School of Music and Drama, London, U.K.)

Associate Professors
Allen, P., BMus (McMaster), MMus (Yale)
Bain, J., BMus (Wilfred Laurier), MA (McGill), PhD (Stony Brook)
Berger, R., BA (King’s), MA (Dalhousie), PhD (Birmingham)
Buhr, S., BA Music (Lesley University), MA (UCLA), PhD (UCLA)
Blais, J., BMus (McGill), MMus (Dalhousie), PhD (Montreal)
Djokic, P., BMus, MA (Dalhousie)
Dionne, M., CEGEP (McGill), BFA (NCSA), MEd (Fordham)
McClure, B., BA (Queen’s), BEd, MA (Toronto), Dip. (NTS)
Nicol, D., BA (Wales), MA (Birmingham), PhD (UCE)
Perina, P., Dip. Scenography (Prague)
Schroeder, D. P., AMus, BA, MA (Western), PhD (Cantab)

Professor Emeritus
Perina, P. MA, Dip. Scenography, (Prague)
Schroeder, D. P., AMus, BA, MA (Western), PhD (Cantab)

Professors
Gantar, J., BA, MA (Ljubljana), PhD (Toronto)
Servant, G. W., BMus (Dalhousie), MMus, DMA (Florida), Artist Diploma (Opernhaus Zurich)

Associate Professors
Allen, P., BMus (McMaster), MMus (Yale)
Bain, J., BMus (Wilfred Laurier), MA (McGill), PhD (Stony Brook)
Berger, R., BA (King’s), MA (Dalhousie), PhD (Birmingham)
Buhr, S., BA Music (Lesley University), MA (UCLA), PhD (UCLA)
Blais, J., BMus (McGill), MMus (Dalhousie), PhD (Montreal)
Djokic, P., BMus, MA (Dalhousie)
Dionne, M., CEGEP (McGill), BFA (NCSA), MEd (Fordham)
McClure, B., BA (Queen’s), BEd, MA (Toronto), Dip. (NTS)
Nicol, D., BA (Wales), MA (Birmingham), PhD (UCE)
Perina, P., Dip. Scenography (Prague)
Schroeder, D. P., AMus, BA, MA (Western), PhD (Cantab)

As of July 1, 2014, the new Fountain School of Performing Arts brings together the former departments of Music and Theatre as a single academic unit. Areas of study include Acting, Film Studies, Composition, Costume Studies, Music Performance, Musikology, Music and Theatre, Technical Theatre and Stage Design, and Theatre Studies. The Fountain School of Performing Arts supports a wide variety of cross-disciplinary initiatives including a high-profile visiting arts program and active outreach and mentoring programming.

For more information on academic programs, see the following Calendar sections:
Film Studies - page 190
Music Programs - page 192
Theatre Programs - page 203
Music

Location: Fountain School of Performing Arts
Dalhousie Arts Centre
6101 University Avenue, Room 514
PO Box 15000
Halifax, NS B3H 4R2

Telephone: (902) 494-2414
Fax: (902) 494-2801
Email: Music@dal.ca
Website: http://dal.ca/performingarts

Dean
Summery-Murray, R., ATCL Dip (Trinity College, London), BA, MA (Canterbury), PhD (Easton)

Interim Director
Gunter, J. (494-2241)

Undergraduate Advisor
Allen, P. (Music) (494-3600)

Professor Emeritus
Schneider, D. P., BMus, BA, MA (Western), PhD (Carnab)

Professors
Servant, G. W., BMus (Dalhousie), MMus, DMA (Hartt), Artist Diploma (Hartt School of Music and Drama, London, U.K.)
Swanston, M., BMus (Leeds), PG Dip Mus, Opera Program (Guildhall School of Music and Drama, London, U.K.)
Barnes, J., BMus (York), MMus (Indiana), Lic. Music (Western Board)
Bhattacharya, L., BMus (Toronto), MMus, DMus (Juilliard)
Stern, J., BMus (Acadia), MMus (New England Conservatory)

Associate Professors
Allen, P., BMus (Mt. Allison), MMus, DMA (Hartt), Artist Diploma (Canterbury), Lic. Music (Western Board)
Barnes, J., BMus (York), MMus (Indiana), Lic. Music (Western Board)

Assistant Professor
Joubert, E., BMus, MA (Toronto), DPhil (Oxford)

Instructor
Marrett, M., BMus (Mt. Allison), MMus (Calgary)

Sessional Lecturers
Rath, D., BMus (Dalhousie)
Mitchell, C.

Part-Time Instructors
Barclay, N., BME (Acadia), MMus (Manitoba)
Bradshaw, D., BMus, MMus (Toronto)
Cromwell, J., BMus (Acadia), MMus (Arizona State)
Corfia, T., BMus (Dalhousie), MMus (New England Conservatory)
Creighton, P., BMus (Toronto)
Ferencz, C., BMus (Toronto), MMus (Juilliard)
Gray, D., BMus, MMus (McGill)
Myracle, L., BMus (Dalhousie), MMus (Westminster Choir College), Opera Studies (The Hartt School)
Hoffman, A., BMus, MMus, New England Conservatory
Kasper, M., Artist Diploma (Toronto)

Collaborative Pianists
Bahnstedt, D., BMus, MMus (Toronto)
Collins, S., BMus (Toronto), MMus, DMA (Eastern Michigan)
Gur, M., BMus (Dalhousie), MMus (Manitoba)
Price, D., BMus (UBC), Lic. Music (Western Board)
Wohlfahrt, L., BMus (Brussells), Lic. Piano (McGill)

I. Introduction
The Fountain School of Performing Arts provides a wide variety of programs for those whose demonstrated talent and specific pre-university training qualify them for specialization in Music studies. Certain courses and ensembles are available to the non-specialist student who wishes to increase both musical awareness as a listener and involvement as a performer.

The Bachelor of Music Program offers intensive professional music training which prepares students for careers or further study in many areas, including performance, composition, theory, musicology, music criticism or music education. It also offers excellent preparation for professional studies in other areas, such as law or journalism.

The 20 Credit BA in Music, the Honours BA in Music, and the BA or BA Honours in Music provide a strong foundation for various professions where a working knowledge of music is desirable, such as librarianship, multimedia programming and production, music industry commercial and electroacoustic work, arts management, recreational and therapeutic professions where a working knowledge of music is desirable, such as librarianship, multimedia programming and production, music industry commercial and electroacoustic work, arts management, recreational and therapeutic

Elective courses for non-majors are available, some of which require no musical background or training.

A. Elective Courses for Non-Majors

- MUSC 1021.03: Listening to Classical Music
- MUSC 1022.03: Listening Beyond the Classics
- MUSC 1001.03: Preparatory Theory and Aural Skills I
- MUSC 1004.03: Preparatory Theory and Aural Skills II
- MUSC 2018.03: Topics in Music and Cinema
- MUSC 2019.03: The Rock 'n' Roll Era and Beyond
- MUSC 2020.03: The Art and Science of Drumming
- MUSC 2600X/Y.06: Recording Studio Techniques
- MUSC 3061.03: Electroacoustic Music
- MUSC 3060.03: Introduction to Music and Sound Technology
- MUSC 3455.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 3455.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
- MUSC 4355.03: Narrative Strategies in 19th-Century Music (cross-listed with GWST 4355.03)
Other courses in Music may be taken by special permission. Applied study (individual studio instruction) may be taken subject to an audition and available space.

B. Admission Procedures for all Music Programs

All Music programs require that candidates (including transfer students) apply to both the university and the Fountain School of Performing Arts and audition for Applied Study. See the website at http://dal.ca/music for the full application process. Re-auditions and testing may be required if enrollment is deferred, if a program is interrupted for a year or more, or if an applied study course is not successfully completed in one academic year.

C. Ensemble Participation

All students (preparatory, major, non-majors and elective students) enrolled in an applied study course (including voice) must participate in ensembles, normally for a minimum of two per year. All wind, brass, percussion and string students will participate, as appropriate and as needed, in Wind Ensemble, Chamber Orchestra, Symphony Orchestra, Jazz Ensemble, and chamber ensembles.

All voice, piano, organ and guitar students will normally participate in the Dalhousie University Choir, and in other ensembles as appropriate to the idiom. Exceptions may be made for BMus Performance students in their fourth year of applied study. Voice students in the BMus Performance concentration may, for pedagogical reasons, with the agreement of the Voice Area, substitute chamber participation with the performance of a significant solo or chamber composition for voice.

The Fountain School of Performing Arts will monitor the number and types of ensembles for each student. Note that most ensembles require auditions.

The Ensemble requirement is specific to each year of Applied Study and appears on the student’s transcript. Students will be given a Pass/Fail grade each year and must complete all required levels with a grade of Pass in order to graduate. The ensemble requirement is non-credit and will not count toward course level, but there is NO TUITION FEE for the Ensemble requirement.

Students must attend regularly and punctually the rehearsals and performances of their required ensembles.

Students should note that ensemble participation typically requires regularly occurring rehearsals and scheduled performances. Since rehearsals and concerts are often in the evening, students are advised not to undertake evening commitments that could conflict with those program and course requirements.

Membership in the various ensembles is open to both the university and the community by auditions. Please contact the director of each ensemble (listed below) or the School for further details.

Dalhousie University Choir (M. Martin)
Dalhousie Wind Ensemble (N. Bader)
Dalhousie Chamber Orchestra (P. Dykstra)
Dalhousie Jazz Ensemble (C. Mitchell)
Dalhousie Percussion Ensemble (D. Gray)
Dalhousie Open Workshop (K. Saverio, M. Swanson)
Small Ensembles (staff coaches)
Collaborative Piano (staff coaches)
Dalhousie Symphony Orchestra (P. Allen)
Voice Chamber Ensemble (M. Swanson)

II. Degree Programs

A. Preparatory Courses

These courses are for those prospective Music-degree program students who demonstrate outstanding potential in their audition, but who require further training before entering first year Music study at the university level.

Students admitted to this level are considered to be in a BA undeclared program and may take a maximum of five full credits.

Curriculum
- MUSC 1003.03: Preparatory Theory and Aural Skills I
- MUSC 1004.03: Preparatory Theory and Aural Skills II
- MUSC 1071X/Y.03: Preparatory Keyboard Skills
- MUSC 1000X/Y.03: Preparatory Applied Study
- Required Writing Course (see Degree Requirements, page 132 for a list of writing courses)
- Arts and Social Sciences or Science elective, one full-credit
- MUSC 0622X/Y.00: Ensemble (Prep)

Special Notes:
- Preparatory Music courses MUSC 1003.03, MUSC 1004.03, MUSC 1071X/Y.03 and MUSC 1100X/Y.06, although credit courses, cannot be counted toward a Music degree program. However, they may be counted as electives in other BA or BMus degree programs.
- Students may be asked to re-test in music theory, aural skills and keyboard skills in order to enter first-year courses.
- The Fountain School of Performing Arts may count the final grade in MUSC 1100X/Y.06 as sufficient proof of readiness to enter one of the School’s degree programs, or may require a separate audition or re-audition.

Standards for Preparatory Courses

Minimum grades for advancement to your Music degree studies (see Special Notes #2 and #3 above):
- MUSC 1003.03 C-
- MUSC 1004.03 B-
- MUSC 1071X/Y.03 B-
- MUSC 1100X/Y.06 B-

B. Bachelor of Music (BMus)

The BMus is a four-year program with 16 out of 20 credits in Music. Upon successful completion of the second year, students in good standing (minimum overall average GPA of 2.7 [B-] in 1000 and 2000-level MUSC courses) may continue with studies in the BMus general degree or may apply for one of three concentrations: Composition, Musicology or Performance. Additional requirements for acceptance to the areas of concentration are listed below, including applicable standards. Please also see section 6. Standards for overall average GPA of 2.7 [B-] in 1000 and 2000-level MUSC courses) may continue with studies in the BMus general degree or may apply for one of three concentrations: Composition, Musicology or Performance. Additional requirements for acceptance to the areas of concentration are listed below, including applicable standards. Please also see section 6. Standards for overall average GPA of 2.7 [B-] in 1000 and 2000-level MUSC courses.

1. Common Curriculum

First Year
- MUSC 1100-level Applied Study (MUSC 1101X/Y.06 to MUSC 1123X/Y.06)
- MUSC 1201.03: Music Theory I
- MUSC 1222.03: Music Theory II
- MUSC 1270.03: Aural Skills I
- MUSC 1271X/Y.03: Keyboard Skills I
- MUSC 1322.03: Music History I
- MUSC 1333.03: Music History II
- Arts and Social Sciences or Science elective, one full credit (Writing Course elective)
- MUSC 0122X/Y.00: Ensemble I

Second Year
- MUSC 2000-level Applied Study (MUSC 2103X/Y.06 to MUSC 2123X/Y.06)
- MUSC 2221.03: Music Theory III
- MUSC 2222.03: Music Theory IV
- MUSC 2270X/Y.03: Aural Skills II
- MUSC 2271X/Y.03: Keyboard Skills II
- MUSC 2322.03: Music History III
- MUSC 2333.03: Music History IV: Specialized Study
- Arts and Social Sciences or Science elective, two half credits
- MUSC 0222X/Y.00: Ensemble II

All students intending to pursue a Concentration in Performance must take MUSC 2175.03 (Lyric Dictation for Singers) either in the second or third year of study, depending on the cycle of courses. If they take MUSC 2175.03 in the second year, MUSC 2353.03 (Music History IV) is deferred to year three or four, not omitted.

* Students intending to pursue a Concentration in Composition may take MUSC 2221.03 (Introduction to Composition) in the Fall semester of their second year. Students taking this option will: 1. Defeat their Fall half credit Arts and Social Sciences or Science elective in the Winter term of the same year. 2. Not take MUSC 2353.03 (Music History IV) in the Winter term of their second year. Students accepted into Composition will be exempt from 2353.03. Students who
are not accepted into Composition will take MUSC 2353.03 (Music History IV) in either their third or fourth year.

2. **BMus General Degree**

   Students in good standing (minimum overall average GPA of 2.7 [B-) in 1000 and 2000-level MUSC courses) may proceed to a BMus general degree program in their third year. This program choice allows for the greatest flexibility within the BMus program offerings. It will prepare students well for advanced degrees in Music including the Bachelor of Education, as well as for a wide range of careers in music.

   Students must submit a proposal for their intended graduation project (4993.06 or 4000-level musicology seminar) by March 1 of the third year of study, according to the Fountain School of Performing Arts guidelines. Students must achieve a minimum grade of 2.7 (B-) in this credit.

   **Third Year**
   - MUSC 1000: Applied Study (MUSC 1010.06 to MUSC 3121.06)
   - MUSC 3283.03: Modal Counterpoint OR MUSC 3284.03: Tonal Counterpoint
   - MUSC 3211.03: Form and Analysis: The Second Viennese School to the Present Day
   - One half-credit in music history beyond the 2000-level chosen from: MUSC 4231.03, MUSC 4281.03, MUSC 4133.03, MUSC 4345.03, MUSC 4319.03, MUSC 4356.03, MUSC 4346/4346.03, MUSC 4362.03, MUSC 4363/4363.03, MUSC 4367.03, MUSC 4368/4368.03, MUSC 4358/4358.03
   - 1.5 credits of Music electives
   - Arts and Social Sciences or Science elective, one full credit
   - MUSC 6322X/Y.06: Ensemble III

   **Fourth Year**
   - MUSC 1000: Applied Study (MUSC 4101.06 to MUSC 4212.06)
   - MUSC 3262.06: Orchestration
   - MUSC 4999.03: Graduation Project or 4000-level Musicology seminar (see 4. Concentration in Musicology for the list of seminars)
   - two credits of Music electives
   - Arts and Social Sciences or Science elective, one full credit
   - MUSC 6422X/Y.06: Ensemble IV

   NOTE: Those students who are interested in pursuing a career in classroom teaching of music must complete an undergraduate degree in Music and then complete a Bachelor of Education (BEd) degree at another institution. Students are advised to consult provincial regulations for teacher certification and entrance requirements for their institution of choice, and to meet with the Undergraduate Advisor in order to ensure optimal course selection within the BMus General degree program.

3. **Concentration in Composition**

   Students in good standing (minimum overall average GPA of 2.7 [B-) in 1000 and 2000-level MUSC courses), along with a minimum grade of 3.3 (B+) in their 1000 and 2000-level MUSC courses, may submit a portfolio of original music (narratively prepared in the MUSC 2210 Introduction to Composition) by March 1 of the second year to apply for admission to this concentration. Students selected for this concentration will demonstrate outstanding abilities and potential as composers. See the Fountain School of Performing Arts guidelines for admission to this concentration.

   Students who are accepted in this concentration must achieve a minimum grade of 2.7 (B-) in the graduation requirement MUSC 4399.05.

   **Third Year**
   - MUSC 1000: Applied Study (MUSC 3101.X/X to MUSC 3121.X/X)
   - MUSC 3221.03: Form and Analysis: The Second Viennese School to the Present Day
   - MUSC 3263.03: Orchestration
   - Modal Counterpoint OR MUSC 3284.03: Tonal Counterpoint
   - MUSC 4353.03: Music since 1945
   - MUSC 4354.03: Popular Music Analysis
   - MUSC 4355.03: Narrative Strategies
   - MUSC 4356.03: Opera Studies
   - MUSC 4358/4358.03: Studies in Medieval Music
   - MUSC 4359.03: Graduate Requirement (Thesis)
   - MUSC 6422X/Y.06: Ensemble IV

   Also in the third and fourth years (6 credits):
   - two credits of Music electives (any choice, but students are strongly encouraged to take MUSC 3283.03: Orchestration)
   - The equivalent of two full credits can be chosen from Musicology electives as listed below:
     - MUSC 3316.03: Women, Gender and Music
     - MUSC 3414.03: Electroacoustic Music
     - MUSC 4353.03: Music since 1945
     - MUSC 4354.03: Popular Music Analysis
     - MUSC 4355.03: Narrative Strategies
     - MUSC 4356.03: Opera Studies
     - MUSC 4358/4358.03: Studies in Medieval Music
     - MUSC 4359.03: Graduate Requirement (Thesis)
     - MUSC 4363/4363.03: Topics in Musicology II
     - MUSC 4362.03: Topics in Canadian Music
     - MUSC 4360.03/4360.03: Topics in Musicology II
     - MUSC 4360.03/4360.03: Selected Composer Studies
     - one credit of any introductory language course (X.Y.06), in a case where a student already has a second language, he or she can be directed towards a third language (at a full credit of literature courses in the second language (e.g., FREN 2021.03: Langue et culture together with FREN 2201.03: Introduction à la littérature for a French-speaking student).

   Students selected for this concentration will demonstrate outstanding abilities and potential as composers. See the Fountain School of Performing Arts guidelines for further details concerning admission procedures.

4. **Concentration in Musicology**

   Students in good standing (minimum overall average GPA of 2.7 [B-) in 1000 and 2000-level MUSC courses) must submit two writing samples by March 1 of the second year to apply for admission to this concentration.

   Students selected for this concentration will demonstrate outstanding abilities and potential as musicologists. See the Fountain School of Performing Arts guidelines for further details concerning admission procedures.

   Students who are accepted in this concentration must achieve a minimum grade of 2.7 (B-) in the graduation requirement MUSC 4399.05.

   **Third Year**
   - MUSC 1000: Applied Study (MUSC 3101.X/X to MUSC 3121.X/X)
   - MUSC 3221.03: Form and Analysis: The Second Viennese School to the Present Day
   - MUSC 3263.03: Orchestration
   - MUSC 4353.03: Music since 1945
   - MUSC 4354.03: Popular Music Analysis
   - MUSC 4355.03: Narrative Strategies
   - MUSC 4356.03: Opera Studies
   - MUSC 4358/4358.03: Studies in Medieval Music
   - MUSC 4359.03: Graduate Requirement (Thesis)
   - MUSC 6422X/Y.06: Ensemble IV

   Also in the third and fourth years (6 credits):
   - two credits of Music electives (any choice, but students are strongly encouraged to take MUSC 3283.03: Orchestration)
   - The equivalent of two full credits can be chosen from Musicology electives as listed below:
     - MUSC 4353.03: Music since 1945
     - MUSC 4354.03: Popular Music Analysis
     - MUSC 4355.03: Narrative Strategies
     - MUSC 4356.03: Opera Studies
     - MUSC 4358/4358.03: Studies in Medieval Music
     - MUSC 4359.03: Graduate Requirement (Thesis)
     - MUSC 4363/4363.03: Topics in Musicology II
     - MUSC 4362.03: Topics in Canadian Music
     - MUSC 4360.03/4360.03: Topics in Musicology II
     - MUSC 4360.03/4360.03: Selected Composer Studies
     - one credit of any introductory language course (X.Y.06), in a case where a student already has a second language, he or she can be directed towards a third language (at a full credit of literature courses in the second language (e.g., FREN 2021.03: Langue et culture together with FREN 2201.03: Introduction à la littérature for a French-speaking student).

   Students selected for this concentration will demonstrate outstanding abilities and potential as composers. See the Fountain School of Performing Arts guidelines for further details concerning admission procedures.

5. **Concentration in Performance**

   Students in good standing (minimum overall average GPA of 2.7 [B-) in 1000 and 2000-level MUSC courses), along with a minimum grade of 3.3 (B+) in their 1000 and 2000-level Applied Study may audition at the end of second year to apply for admission to this concentration.

   Students selected for this concentration will demonstrate outstanding abilities and potential as performers. See the Fountain School of Performing Arts guidelines for further details concerning admission procedures.

   Students who are accepted in this concentration must achieve a minimum grade of 3.3 (B+) in third year Performance Concentration Applied Study (MUSC 3701.06 to 3721.06) and in the Third Year performance recital (MUSC 3399.03) in order to remain in the concentration. Students must achieve a minimum grade of 2.7 (B-) in their fourth year Performance Concentration Applied Study (MUSC 4701.06 to 4721.06) and in their Fourth Year performance recital (4993.03).
Third Year
- MUSC 3000 level Performance Concentration Applied Study (MUSC 3701X/Y.06 to MUSC 3721X/Y.06)
- MUSC 1101X/1102X.03: Music Theory I
- MUSC 2101X/2102X.06: Voice I
- MUSC 2201X/2202X.06: Voice II
- MUSC 2270X/2271X.03: Aural Skills II/Keyboard Skills I
- MUSC 3101X/3102X.06: Voice III
- MUSC 3201X/3202X.03: Counterpoint and Analysis
- MUSC 3308X/3309X.03: Baroque/Classical Literature
- MUSC 3353X/3354X.03: Chamber Music Literature
- MUSC 4170X/4171X.03: Improvisation Techniques and Practices
- MUSC 4711X/4712X.03: Ensemble IV

Fourth Year
- MUSC 4199X/4200X.03: Area Graduation Requirement (Performance: Recital)
- MUSC 4000-level Performance Concentration Applied Study (MUSC 4713X/4714X.06)
- MUSC 0422X/Y.00: Ensemble IV

Although not required, students in Performance are encouraged to take MUSC 3352X.03, Orchestration, as one of their Music electives.

Also in the third and fourth years, according to idiom:

Voice (5.5 credits):
- MUSC 3117X.03: Principles of Vocal Pedagogy
- MUSC 3114X.03: History of Opera
- 3.5 Music electives, any choice

Piano (5.5 credits):
- 3.5 full credit Music electives, any choice; however, if offered, students should take:
  - MUSC 3353X.03: Chamber Music Literature
  - two full credits Arts and Social Sciences or Science electives

Strings (5.5 credits):
- 3.5 full credit Music electives, any choice; however, if offered, students should take:
  - MUSC 3160X.03: Conducting
  - MUSC 3355X.03: Chamber Music Literature
  - two full credits Arts and Social Sciences or Science electives

Guitar (5.5 credits):
- MUSC 3308X.03: Modern Guitar
- MUSC 4170X.03: Improvisation Techniques and Practices
- 2.5 full credit Music electives, any choice

Saxophone (5.5 credits):
- MUSC 4114X.03: Improvisation Techniques and Practices
- MUSC 2020X.03: The History of Jazz
- 2.5 full credit Music electives, any choice

Wind and brass instruments, percussion (5.5 credits):
- 3.5 Music electives, any choice

6. BMus Standards
Students may not enroll in the Bachelor of Music Graduation Requirement courses (MUSC 4199X-MUSC 4999) until the fourth year of the Program. Students must achieve an average minimum overall GPA of 2.7 (B-) in Music courses beyond the 1000 level in order to graduate with a BMus degree. Students must achieve a minimum grade of C+ in 1000 level applied study. Grades in MUSC courses beyond the 1000 level must be "C" or better in order to count toward the BMus degree.

See also the sections above for specific standards regarding concentrations.

C. BA with Combined Honours in Music and Theatre
The Fountain School of Performing Arts offers a highly specialized four-year BA with a Combined Honours in Music and Theatre which blends the principal courses of the Bachelor of Music in Voice with Theatre courses in Acting and Movement. A maximum of five students will be selected for entrance into the program each year. The graduate of this program will advance toward a professional career in the performing arts equipped with a foundation in music and theatre.

Students must successfully complete the audition/interview tests for the first year of the Music Program. Students must also audition for, and be accepted into, the Acting Program. The prerequisite for audition is the successful completion of THEA 1800X/Y.06.

To qualify for graduation a student must participate by having a significant role in at least one staged musical production (either an integral part of Dal Theatre Productions or the Opera Workshop).

In addition to the School requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 325 of this calendar.

NOTE: Students having to withdraw from this Program through failure to achieve the required standards in Theatre courses must re-apply if desiring a degree program in Music. Students having to withdraw from this Program through failure to achieve the required standards in Music courses must re-apply if desiring a degree program in Theatre.

First year
- MUSC 1101X/1102X.06: Voice I
- MUSC 1210X.03: Music Theory I
- MUSC 1222X.03: Music Theory II
- MUSC 1270X.03: Aural Skills I
- MUSC 2101X/2102X.03: Keyboard Skills I
- THEA 1000X.06: Introduction to Theatre (Writing Requirement)
- THEA 1800X.06: Introduction to Acting and Performance
- MUSC 0122X.Y.00: Ensemble I (normally Dalhousie University Chorus/Opera Workshop)

Second year
- MUSC 2101X/2102X.06: Voice II
- MUSC 2222X.03: Music Theory III
- MUSC 2270X.03: Music Theory IV
- MUSC 2353X.03: Aural Skills II
- MUSC 2271X.03: Keyboard Skills II
- THEA 2800X.03: Acting II
- THEA 2820X.Y.06: Dance & Movement II
- MUSC 0222X.Y.00: Ensemble II (normally Dalhousie University Chorus/Opera Workshop)

Third year
- MUSC 3101X/3102X.06: Voice III
- THEA 2012X.03: Early Modern Theatre
- THEA 3000X.03: Acting III
- THEA 3020X.Y.06: Dance & Movement III
- Arts and Social Science: One of 1000-level Life or Physical Science, Social Science, or Language Course Requirement (see Degree Requirements, p. 40 of this Calendar)
- MUSC 0322X.Y.00: Ensemble III (normally Dalhousie University Chorus/Opera Workshop)
- MUSC 3314X.03: History of Opera

Fourth year
- MUSC 4101X/4102X.06: Voice IV
- THEA 4000X.Y.06: Acting IV
- THEA 4400X.Y.06: Advanced Performance Techniques
- Arts and Social Science: Two remaining 1000-level Life or Physical Science, Social Science, or Language Course Requirement (see Degree Requirements, p. 40 of this Calendar)
- MUSC 0422X.Y.00: Ensemble IV (normally Dalhousie University Chorus/Opera Workshop)
Honours Music and Theatre students will be awarded the 21st credit for their satisfactory participation in a Dal Theatre or Opera Workshop production.

D. BA (20 credit) Honours in Music

In addition to the School requirements listed below, students must satisfy the requirements outlined in the College of Arts and Science Degree Requirements section, beginning on page 125 of this calendar. Students must successfully complete an audition/entrance test.

School Requirements

First year (5.0 credits):
- MUSC 1000-level Applied Study (MUSC 101X/Y.06 to 1121X/Y.06)
- MUSC 1201.03: Music Theory I
- MUSC 1222.03: Music Theory II
- MUSC 1270X/Y.03: Aural Skills I
- MUSC 1271X/Y.03: Keyboard Skills I
- One full credit Arts and Social Sciences Writing Course
- One full credit Arts and Social Sciences or Science elective
- MUSC 0122X/Y.00: Ensemble I

Second year (5.0 credits):
- MUSC 2000-level Applied Study (MUSC 210X/Y.06 to 2121X/Y.06)
- MUSC 2270X/Y.03: Aural Skills II
- MUSC 2271X/Y.03: Keyboard Skills II
- MUSC 2221.03: Music Theory III
- MUSC 2222.03: Music Theory IV
- Two full credits Arts and Social Sciences or Science electives (see Degree Requirements for the College of Arts and Science)
- MUSC 0222X/Y.00: Ensemble II

Additional School Requirements
- MUSC 1552.03: Music History I (recommended during 2nd year)
- MUSC 2521.03: Music History II
- MUSC 4509.03: Graduation Requirement (Thesis)
- Five to seven full credits Music electives, at least three above the 2000 level

E. Bachelor of Arts (Combined Honours Program) Bachelor of Science (Combined Honours Program)

Students may enrol in either of these combined honours programs with the joint approval of the Fountain School of Performing Arts and the department of the allied subject (in compliance with the Combined Honours requirements detailed in the Degree Requirements section, page 125 of this calendar). Students must successfully complete an audition/entrance test.

School Requirements

1000-level
- MUSC 1000-level Applied Study (MUSC 101X/Y.06 to 1121X/Y.06)
- MUSC 1201.03: Music Theory I
- MUSC 1222.03: Music Theory II
- MUSC 1270X/Y.03: Aural Skills I
- MUSC 1271X/Y.03: Keyboard Skills I
- MUSC 1552.03: Music History I
- MUSC 0122X/Y.00: Ensemble I

Additional School Requirements: As at least four credits in Music above the 1000 level, at least two of which must be at the 3000 or 4000 level. Among these, one half-credit additional course in Musicology must be completed (chosen from MUSC 2352.03, 2353.03, 4353.03).

NOTE: Students considering Honours programs must meet with their academic advisor in the Fountain School of Performing Arts as soon as possible in their program, and no later than their second year of studies. For Combined Honours programs, students must consult with Advisors in BOTH departments for approval of the Fountain School of Performing Arts as soon as possible in their program, and no later than their second year of studies. For Combined Honours programs, students must consult with Advisors in BOTH departments for approval of the combined BA, and for Honours BA through the University of King’s College: Bachelor of Music with King’s Foundation Year (FY) Bachelor of Journalism with Music History Option, and Bachelor of Arts combined honours in Contemporary Studies. Students may also pursue a BA (20 credit) and an honours BA through the University of King’s College. Please consult the University of King’s College (Office of the Registrar) for further information including curriculum and registration details.

F. BA (20 credit) Major in Music

In addition to the School requirements listed below, students must satisfy the requirements outlined in the College of Arts and Science Degree Requirements section, beginning on page 325 of this calendar. Students must successfully complete an audition/entrance test.

School Requirements

First year (5.0 credits):
- MUSC 1000-level Applied Study (MUSC 101X/Y.06 to 1121X/Y.06)
- MUSC 1201.03: Music Theory I
- MUSC 1222.03: Music Theory II
- MUSC 1270X/Y.03: Aural Skills I
- MUSC 1271X/Y.03: Keyboard Skills I
- One full credit Arts and Social Sciences Writing Course
- One full credit Arts and Social Sciences or Science elective
- MUSC 0122X/Y.00: Ensemble I

Second year (5.0 credits):
- MUSC 2000-level Applied Study (MUSC 210X/Y.06 to 2121X/Y.06)
- MUSC 2270X/Y.03: Aural Skills II
- MUSC 2271X/Y.03: Keyboard Skills II
- MUSC 2221.03: Music Theory III
- MUSC 2222.03: Music Theory IV
- Two full credits Arts and Social Sciences or Science electives
- MUSC 0222X/Y.00: Ensemble II

Additional School Requirements:
- MUSC 1552.03: Music History I (recommended during second year)
- MUSC 1553.03: Music History II
- MUSC 2532.03: Music History III
- Three to 5.5 full credits Music electives, at least three above the 2000 level.

G. BA or BSc (20 credit) Double Major

In addition to the Fountain School of Performing Arts requirements listed below, students must satisfy the requirements outlined in the College of Arts and Science Degree Requirements section, beginning on page 125 of this calendar. The major subject with the most advanced credits appears first on the record.

School Requirements
a. Music as First Subject: Students must satisfy the School requirements as listed for the 20 credit BA with Major in Music (section F. above), including 1000 and 2000 level applied study. Students must successfully complete an audition/entrance test. Please consult with the School for details.

b. Music as Second Subject: Students must complete one year of applied study (subject to audition) and four full Music credits above the 1000 level, including two full credits beyond the 2000 level. The following courses may not be used to count toward this degree: MUSC 2007.06, MUSC 2226.06, MUSC 2351.06, MUSC 3130.06

H. Minor Programs in Music and Musicology

See Minors in the College of Arts and Science section of this calendar.

I. Cooperative Degree Programs with the University of King’s College

The following degree programs are offered in cooperation with the University of King’s College: Bachelor of Music with King’s Foundation Year (FY), Bachelor of Journalism with Music History Option, and Bachelor of Arts combined honours in Contemporary Studies. Students may also pursue a BA (20 credit) and an Honours BA through the University of King’s College. Please consult the University of King’s College (Office of the Registrar) for further information including curriculum and registration details.

III. Course Descriptions

NOTE: Not all courses are offered every year. Please consult the current timetable for further information.
MUSC 1020.03: Listening to Classical Music. Designed for the interested listener who desires to acquire an informed response to musical experiences. Knowledge of musical notation and terminology is not a prerequisite. The course is a survey of musical styles from the late nineteenth century to the late twentieth century. We will consider music and image; music and the related arts; the art and psychology of listening. This course is for non-music majors and cannot be counted as a credit toward a degree in Music.

FORMA T: Lecture 3 hours
EXCLUSION: MUSC 1011.03

MUSC 1021.03: Listening Beyond the Classics. Designed for the interested listener who desires to acquire an informed response to musical experiences. Knowledge of musical notation and terminology is not a prerequisite. The course is a survey of musical styles and into the late nineteenth century. We will consider music and image; music and the related arts, the art and psychology of listening. This course is for non-music majors and cannot be counted as a credit toward a degree in Music.

FORMA T: Lecture 3 hours
EXCLUSION: MUSC 1010.03

MUSC 1100X/Y.06: Preparatory Applied Study. A non-credit co-requisite for students in First Year (1000-level) Applied Study (voice or instrument). The number and type of ensemble(s) are selected in accordance with instrument/program requirements and with the guidance and approval of the applied-studies instructor. Ensemble participation typically requires regularly occurring rehearsals and scheduled performances. Please see the department for specific guidelines and schedules. Refer to page 187 for further details and a list of ensembles.

MUSC 1101X/Y.06: Preparatory Applied Study. A non-credit co-requisite for students in Second Year (2000-level) Applied Study (voice or instrument). The number and type of ensemble(s) are selected in accordance with instrument/program requirements and with the guidance and approval of the applied-studies instructor. Ensemble participation typically requires regularly occurring rehearsals and scheduled performances. Please see the department for specific guidelines and schedules. Refer to page 187 for further details and a list of ensembles.

MUSC 1102X/Y.06: Preparatory Applied Study. A non-credit co-requisite for students in Third Year (3000-level) Applied Study (voice or instrument). The number and type of ensemble(s) are selected in accordance with instrument/program requirements and with the guidance and approval of the applied-studies instructor. Ensemble participation typically requires regularly occurring rehearsals and scheduled performances. Please see the department for specific guidelines and schedules. Refer to page 187 for further details and a list of ensembles.

MUSC 1103X/Y.06: Preparatory Applied Study. A non-credit co-requisite for students in Fourth Year (4000-level) Applied Study (voice or instrument). The number and type of ensemble(s) are selected in accordance with instrument/program requirements and with the guidance and approval of the applied-studies instructor. Ensemble participation typically requires regularly occurring rehearsals and scheduled performances. Please see the department for specific guidelines and schedules. Refer to page 187 for further details and a list of ensembles.

NOTE: Credit can only be given for the course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMA T: Lab 2 hours
PREREQUISITE: Permission of the instructor, on the basis of the results of the Entrance Keyboard Proficiency Test

MUSC 1081.03: Voice Clinic for the Theatre. A course in the principles of singing as applied to classical actor training. Exercises and repertoire appropriate to this training will be prepared by the students for class performance. No prior instruction in music or singing is presumed.

FORMA T: A twice weekly ensemble class: 1.5 hours plus individual tutorials
EXCLUSION: This class is offered exclusively to students in the third year of the Acting Program

MUSC 1100X/Y.06: Preparatory Applied Study. For students in the Preparatory Year. By special recommendation some music majors may be advised by the Auditioning Committee to begin individual lessons at a level prerequisite to first year Applied Study courses. NOTE: Credit can only be given for the course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

CO-REQUISITE: MUSC 0022X/Y.00, Ensemble (Prep)

MUSC 1000 level Applied Study. Individual studio instruction. May be taken as elective course subject to audition and availability of space. Please note that all applied study courses require an audition. Please contact the Fountain School of Performing Arts for audition dates or visit the website http://dal.ca/music. Auxiliary fees apply. Co-requisite little participation is required. Students must achieve a minimum grade of C or higher in first year applied study in order to advance to second year applied study.

• MUSC 1011X/Y.06: Voice I
• MUSC 1012X/Y.06: Voice II
• MUSC 1013X/Y.06: Piano I
• MUSC 1014X/Y.06: Organ I
• MUSC 1015X/Y.06: Violin I
• MUSC 1016X/Y.06: Violin II
• MUSC 1017X/Y.06: Cello I
• MUSC 1018X/Y.06: Double Bass I
• MUSC 1100X/Y.06: Flute I
• MUSC 1101X/Y.06: Flute II
• MUSC 1102X/Y.06: Oboe I
• MUSC 1103X/Y.06: Oboe II
• MUSC 1104X/Y.06: Clarinet I
• MUSC 1112X/Y.06: Bassoon I
• MUSC 1113X/Y.06: Saxophone I
• MUSC 1114X/Y.06: French Horn I
• MUSC 1115X/Y.06: Trumpet I
• MUSC 1116X/Y.06: Trombone I
• MUSC 1117X/Y.06: Tuba I
• MUSC 1118X/Y.06: Percussion I

NOTE: Students taking any of the above courses must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.

MUSC 1201.03: Music Theory I. To fully understand the principles and origin of common-practice tonal music, as studied in MUSC 1222, this course proposes a survey of both pre- and post-tonal music, showing how they relate to each other. The focus will be on through baroque and classical styles and into the late nineteenth century. We will consider music and image; music and the related arts, the art and psychology of listening. This course is for non-music majors and cannot be counted as a credit toward a degree in Music.

FORMA T: Lecture 3 hours
EXCLUSION: MUSC 1010.03

MUSC 1202.03: Listening to Classical Music. Designed for the interested listener who desires to acquire an informed response to musical experiences. Knowledge of musical notation and terminology is not a prerequisite. The course is a survey of musical styles from the pre-modern era through baroque, classical, and into the late nineteenth century. We will consider music and image; music and the related arts, the art and psychology of listening. This course is for non-music majors and cannot be counted as a credit toward a degree in Music.

FORMA T: Lecture 3 hours
EXCLUSION: MUSC 1011.03

MUSC 1203.03: History of Music. Designed for the interested listener who desires to acquire an informed response to musical experiences. Knowledge of musical notation and terminology is not a prerequisite. The course is a survey of musical styles from the pre-modern era through baroque, classical and into the late nineteenth century. We will consider music and image; music and the related arts, the art and psychology of listening. This course is for non-music majors and cannot be counted as a credit toward a degree in Music.

FORMA T: Lecture 3 hours
EXCLUSION: MUSC 1010.03

MUSIC - Fountain School of Performing Arts 197

BY: Arts and Social Sciences

Music - Fountain School of Performing Arts
musicology (modes, phrase structure, cadences and metric manipulation of the Middle Ages, Renaissance and early 20th century counterpoint) and contrapuntal (counterpoints in two-part species counterpoint and analysis of short 20th century contrapuntal music).

**MUSIC 1222.03: Music Theory II.**

An introduction to diatonic and chromatic harmony, developing skills in part-writing and harmonic analysis.

**Format:** Lecture 3 hours

**Prerequisite:** Permission of the instructor based on placement testing, or MUSC 1005/MUSC 1006

**Corequisite:** MUSC 1200X/Y, MUSC 1217X/Y

**MUSIC 1270X/Y.03: Aural Skills I.**

A course designed to correlate with MUSC 1201.03 and MUSC 1222.03. melodies, harmony, rhythmic, textural and stylistic factors are vocalized, performed and dictated systemically. Lab work in ear-training and sight-singing is done three times per week. Each student is a member of a small working section.

**Signature Required**

**Note:** Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.

**Format:** Lab 3 hours

**Prerequisite:** Permission of the instructor based on placement testing or MUSC 1001.03/1002.03 or equivalent

**Corequisite:** MUSC 1201.03, 1222.03, and 1270X/Y

**MUSIC 1271X/Y.03: Keyboard Skills I.**

The development of basic skills in sight reading, score reading and harmonized accompaniment at the keyboard, for Music degree program students.

**Signature Required**

**Note:** Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.

**Format:** Lab 3 hours

**Prerequisite:** Permission of instructor based on placement testing or MUSC 1071.03

**Corequisite:** MUSC 1201.03, 1222.03, and 1270X/Y

**MUSIC 1352.03: Music History I.**

An introduction to thinking and writing about music. This course will use well-known works to develop an understanding of musical styles and functions, and it will explore such topics as melody, harmony, rhythm, texture and timbre. One of the goals of the course is to acquire university-level research, writing, critical listening and analytical skills. The ability to read musical notation is required.

**Signature Required**

**Note:** Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.

**Format:** Lecture 3 hours

**MUSIC 1353.03: Music History II.**

A survey of Western European art music from antiquity to 1750. The work required will include critical listening, writing, score study and historical research.

**Format:** Lecture 3 hours

**Prerequisite:** MUSC 1352.03 or permission of instructor

**Corequisite:** MUSC 1350.03 and MUSC 1351.03

**MUSIC 2007X/Y.06: The Guitar: History and Techniques.**

This course will introduce students to the various styles of guitar playing from classical to jazz to folk. The history of the instrument (including lute and other related plucked instruments) and an examination of the key styles and performers will be covered. Practical instruction will be provided in this course, so a guitar will be necessary. Practical instruction will attempt to accommodate the various skill levels of the students enrolled.

**Special Note:** This course is for non-music majors and cannot be counted toward a music degree.

**Note:** Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.

**Format:** Lab and lecture 3 hours

**MUSIC 2008X/Y.06: Modern Guitar.**

A course for students with a serious interest in preparing for studio guitar playing. The course includes jazz, folk, rock and accompanying techniques. Students will receive instruction and participate in ensemble playing in improvisation, score reading, chordology, and arranging.

**Note:** Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively. Music majors must register only for MUSC 2008X/Y.06

**Format:** Lab and lecture 3 hours

**Prerequisite:** MUSC 2007.06 or permission of the instructor

**Exclusion:** MUSC 3358.03

**MUSIC 2016.03: Topics in Music and Cinema.**

This course investigates various engagements of music and cinema. Topics vary from year to year and may include: depictions of diatonic music, musical narrativity in film, representation, manipulation, genres and styles, music or sound as special effect, film-scoring and the use of notable songs/tracks.

**Format:** Lab (Screening)/lecture 4 hours

**Exclusion:** MUSC 2013X/Y.06

**MUSIC 2018.03: Popular Music Until 1960.**

This course focuses on the origins and development of popular music in the twentieth century, tracing a history of rock'n'roll from its roots in minstrelsy and music hall styles of the nineteenth century until the end of rock'n'roll era in the 1950s. While no previous background in music is required, students will be expected to listen closely to selected music and to contribute to class discussions. Students will gain greater knowledge of history, as it affects and is affected by musical activities, and they will appreciate the motives behind the debates that have always surrounded popular music. Above all, students will learn to understand the history of rock'n'roll in terms of changes in both musical techniques and social values, and to recognize music as a site of celebration and struggle.

**Format:** Lecture/discussion 3 hours

**MUSIC 2019.03: The Rock'n'Roll Era and Beyond.**

This course focuses on the many different kinds of popular music that have proliferated since the 1950s. While no previous background in music is required, students will be expected to listen closely to selected music and to contribute to class discussions. Students will gain greater knowledge of history, as it affects and is affected by musical activities, and they will appreciate the motives behind the debates that have always surrounded popular music. Above all, students will learn to understand the history of rock'n'roll in terms of changes in both musical techniques and social values, and to recognize music as a site of celebration and struggle.

**Format:** Lecture/discussion 3 hours

**MUSIC 2020.03: The History of Jazz.**

This course is an overview of the origins and development of jazz, concentrating on the historical and social contexts of music and musicians. We will discuss many of the kinds of music that have been called jazz, and we will analyze their roles in twentieth century culture. Knowledge of musical notation and terminology is not required.

**Format:** Lecture/discussion 3 hours

**Exclusion:** MUSC 2015X/Y.06

**MUSIC 2022X/Y.06: The Art and Science of Drumming.**

This course will introduce students to the art and science of modern hand drums. The history of the instrument as well as cultural context and rhythmic structure will be discussed for various music genres and styles of drumming. A significant portion of the class will be practical, where students will be taught the rudiments of reading music and playing hand drums. This means that it will be necessary for each student to bring an approved hand drum to each class.

**Note:** This course is for non-music majors only and cannot be counted as a credit in a music degree program.

**Format:** Lab and lecture 3 hours

**MUSIC 2000 level Applied Study.**

Individual studio instruction. May be taken as elective credit subject to audition and availability. Please note that all applied study courses require an audition. Please contact the Fountain School of Performing Arts for audition dates or visit website http://dal.ca/music. Auxiliary fees apply. Co-requisite ensemble participation is required.

- MUSC 2101X/Y.06: Voice II
- MUSC 2102X/Y.06: Guitar II
MUSC 2270X/Y.03: Aural Skills II.
This course provides further practice in melodic and harmonic dictation and sight-singing; it correlates with MUSC 2221.03 and 2222.03. A special component deals with rhythm skills in sight-singing.
SIGNATURE REQUIRED
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lab 2 hours
PREREQUISITE: MUSC 2201.03, 2202.03, 2270X/Y.03
CO-REQUISITE: MUSC 2221.03, 2222.03, 2271X/Y.03
MUSC 2271X/Y.03: Keyboard Skills II.
A continuation of MUSC 2270X/Y.03 for Music degree program students. SIGNATURE REQUIRED
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lab 2 hours
PREREQUISITE: MUSC 2201.03, 2202.03, 2270X/Y.03
CO-REQUISITE: MUSC 2221.03, 2222.03, 2270X/Y.03
MUSC 2352.03: Music History III.
A survey of Western European art music from 1750 to the present. The work required will include critical listening, writing, score study and historical research.
FORMAT: Lecture 3 hours
PREREQUISITE: MUSC 1352.03 and/or permission of the instructor
EXCLUSION: MUSC 2352.03 and MUSC 2351.03
MUSC 2353.03: Music History IV: Focused Study.
This course provides the opportunity for the advanced study of selected topics in music history. Its specific focus changes each year according to the instructor, but it always develops concepts and methods introduced in Music History I-III, and it challenges students with more in-depth analysis of a genre, composer, period or style. Thus, topics covered will include: the medieval lyric; the works of Beethoven; music in the 19thc. and jazz.
FORMAT: Lecture 3 hours
PREREQUISITE: MUSC 1353.03 and MUSC 2352.03 and/or permission of instructor
MUSC 2600X/Y.06: Recording Studio Techniques.
Techniques for creating and recording music in the contemporary recording studio. The course will be a foundation for contemporary musicians and sound artists to understand and work in the recording studio, both as an "instrument" in its own right, and as an extension of their own instrumental techniques. In addition to technical topics (microphone usage, console and recorder operations, etc.) there is a further emphasis on production techniques; approaches to performing and directing in the studio; proper conduct on both sides of the glass; planning, budgeting and running a session; creative use of technical resources.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lab and lecture 3 hours
PREREQUISITE: MUSC 1352.03 and/or permission of instructor
MUSC 3000 level Applied Study.
Individual studio instruction. May be taken as elective course subject to audition and available space. Please note that all applied study courses require an audition. Please contact the Fountain School of Performing Arts for audition dates or visit website http://Dal.Lecture. Ancillary fees are co-operative ensemble participation is required.
• MUSC 3101X/Y.06: Voice III
• MUSC 3102X/Y.06: Tenor III
• MUSC 3103X/Y.06: Piano III
• MUSC 3104X/Y.06: Organ III
• MUSC 3105X/Y.06: Violin III
• MUSC 3106X/Y.06: Cello III
• MUSC 3107X/Y.06: Double Bass III
• MUSC 3108X/Y.06: French Horn III
• MUSC 3109X/Y.06: Flute III
• MUSC 3110X/Y.06: Oboe III
• MUSC 3111X/Y.06: Clarinet III
• MUSC 3112X/Y.06: Bassoon III
• MUSC 3113X/Y.06: Saxophone III
• MUSC 3114X/Y.06: Saxophone III
• MUSC 3115X/Y.06: French Horn III

Music - Fountain School of Performing Arts 199
MUSIC 300 level Performance Concentration Applied Study.

Individual studio instruction for students in the BMus Performance Concentration. Please note that acceptance to the Performance Concentration applied study requires a written application, audition, and permission of the Fountain School of Performing Arts. Auditions take place at the conclusion of the second year of the Bachelor of Music program. Auxilliary fees apply. Co-requisite ensemble participation is required.

MUSIC 3001.Y.06: Voice I (Performance)
MUSIC 3002.Y.06: Guitar I (Performance)
MUSIC 3003.Y.06: Piano I (Performance)
MUSIC 3004.Y.06: Organ I (Performance)
MUSIC 3005.Y.06: Viola I (Performance)
MUSIC 3006.Y.06: Cello I (Performance)
MUSIC 3007.Y.06: Double Bass I (Performance)
MUSIC 3008.Y.06: Flute I (Performance)
MUSIC 3101.Y.06: Oboe I (Performance)
MUSIC 3111.Y.06: Clarinet I (Performance)
MUSIC 3112.Y.06: Bassoon I (Performance)
MUSIC 3113.Y.06: Saxophone I (Performance)
MUSIC 3114.Y.06: French Horn I (Performance)
MUSIC 3115.Y.06: Trumpet I (Performance)
MUSIC 3116.Y.06: Trombone I (Performance)
MUSIC 3117.Y.06: Tuba I (Performance)
MUSIC 3118.Y.06: Percussion I (Performance)

MUSIC 3060.03/3660.03: Introduction to Music and Sound Technology.

An introduction to the technologies in common use in music creation, performance and teaching, with particular attention to the way these technologies shape artistic and pedagogical processes. Topics include basic electroacoustic theory, sound recording and duplication, sound synthesis, MIDI, and personal computer music applications.

NOTE: Music majors must register in MUSIC 3660.03

FORMAT: Lecture and lab 3 hours
PREREQUISITE: Permission of the instructor

MUSIC 3061.03/3661.03: Electroacoustic Music.

An introduction to techniques and strategies for the creation and performance of electroacoustic and experimental music. The emphasis is on individual student creative works, with collective critiques. Students are encouraged to explore historic, contemporary, cross-disciplinary and experimental strategies in the creation and performance of their work.

NOTE: Music majors must register in MUSIC 3661.03

FORMAT: Lab and seminar 3 hours
PREREQUISITE: MUSIC 3060.03, 3660.03, or its equivalent; permission of the instructor

MUSIC 3063.06: Women, Gender and Music.

The course explores the variety of ways in which gender shapes musical discourse. The role of gender in music will be examined through three broad topics: the history of female contributions to music in musicology; composers, patrons and listeners, gender, musical constructions of gender, race, class and sexuality; and feminist criticism in recent musical discourse. Music students will be directed to more technical literature for their assignments and research paper, and will be required to engage in more technical descriptions of the music for all written work.

FORMAT: Lecture 3 hours
PREREQUISITE: MUSIC 2222.03, 1352.03, 1353.03, 2352.03
CROSS-LISTING: GWS 2352.05

MUSIC 3130.06: Jazz Dance II (Spring Session Only).

This course is the second part of a two-part sequence exploring the history and techniques of jazz dance. The focus will be on the development of personal expression through the medium of dance. Students must have a basic foundation in dance technique.

FORMAT: Lab/demonstration/lecture

PREREQUISITE: MUSIC 2130.06 or permission of instructor (interview)

CROSS-LISTING: THEA 3020.06: Jazz Dance II (Spring session only)

MUSIC 3160.03: Conducting.

A practical introduction to the basic techniques of conducting.

SIGNATURE REQUIRED

FORMAT: Lab 2 hours
PREREQUISITE: MUSIC 2270.03 and MUSIC 2222.03 and permission of the instructor

MUSIC 3161.03: Choral Techniques.

Study of the distinctive features of conducting choral ensembles with emphasis on rehearsal technique, score preparation, interpretation and group methods of building vocal tone. Practical experience will be gained in university and community settings.

SIGNATURE REQUIRED

FORMAT: Lecture/lab 3 hours
PREREQUISITE: MUSIC 2270.03 and MUSIC 2222.03 and permission of the instructor

MUSIC 3176.03: Principles of Vocal Pedagogy.

An introduction to the classic pedagogues of the Italian, German, French and English schools of singing. Spectrograph analysis of vowel formant series and fiberoptic video analysis of laryngeal function will be studied as well. Students will apply the techniques studied through a supervised practicum.

SIGNATURE REQUIRED

FORMAT: Lecture/hands-on 3 hours
PREREQUISITE: MUSIC 2101.03 and permission of the instructor

CROSS-REQUIRED: MUSIC 3100.03/3701.03 or 4101.03/4701.03

MUSIC 3177.03: Vocal Literature.

An introductory survey of Classical song literature from the Renaissance to the modern day covering the historical context, style and vocal performance practice through listening, assigned readings and score study.

FORMAT: Lecture 3 hours
PREREQUISITE: Permission of the instructor

MUSIC 3199X.Y.03: Half - Recital.

Required for all third-year Bachelor of Music students in the Performance concentration. May also be available to exceptional students in the fourth year of either 20-credit Music degree programs, by audition. Students must have completed all 2000-level theory courses as per Calendar guidelines. Students not in BMus Performance concentration must have a co-requisite of a minimum 4000- level applied study course. Please note that additional fees will apply for students not in BMus Performance concentration. This is a solo recital only. Recital repertoire should consist of 20 to 40 minutes of music. See the Fountain School of Performing Arts for further details including audition procedures and deadlines. Exclusions: students in 15-credit degree programs are not eligible.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Performance
PREREQUISITE: Audition and permission of Department

MUSIC 3210X.Y.06: Composition I.

Open only to students accepted into the BMus Concentration in Composition. Techniques and approaches of today’s music studied through writing of musical works for diverse instruments and ensembles, and through analysis of important works of repertoire. Emphasis will be given to creativity and to practical aspects of musical composition: effectiveness of orchestration, playability, quality of score, and preparation of parts.

SIGNATURE REQUIRED

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Individual lessons and group courses with other Composition students

MUSIC 3221.03: Form and Analysis: the Second Viennese School to the Present Day.

Analysis of selected 20th- and 21st-century compositions. SIGNATURE REQUIRED

FORMAT: Lecture 3 hours
PREREQUISITE: MUSIC 2222.03, MUSIC 2352.03 or permission of the Department

EXCLUSION: MUSIC 4281.03
MUSC 3282.03: Orchestration.
A survey of the development of the orchestra and the orchestral instruments with an introduction to acoustics. Techniques in the deployment of instrumental combinations is emphasized through practical exercises in scoring for small chamber ensembles and a mediumsized orchestra common in the 20th century.
SIGNATURE REQUIRED
FORMAT: Lecture 3 hours
PREREQUISITE: MUSC 2222.03

MUSC 3283.03: Modal Counterpoint.
Polyphonic techniques of the Renaissance period studied through written exercises in species and free counterpoint, as well as through analysis of works by Lassus, Palestrina, Victoria and others.
SIGNATURE REQUIRED
FORMAT: Lecture 3 hours
PREREQUISITE: MUSC 2222.03
EXCLUSION: MUSC 2280.03
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
MUSC 3284.03: Tonal Counterpoint.
A study of tonal counterpoint in the baroque style. A particular emphasis will be made on the instrumental music of its most representative masters, J.S. Bach, through analysis of works and writing of stylistic exercises.
SIGNATURE REQUIRED
FORMAT: Lecture 3 hours
PREREQUISITE: MUSC 2222.03
EXCLUSION: MUSC 2280.03

MUSC 3308X/Y.06: Modern Guitar (Advanced Fretboard and Harmony).
For music majors only, this course aims to give the committed guitarist a thorough grounding in fretboard harmony, progressing from the simplest structures to the most complex, and to provide resources and practical exercises for applying this content within various musical idioms. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lab/Lecture 3 hours
PREREQUISITE: MUSC 1102, MUSC 2102

MUSC 3314.03: History of Opera.
Consideration of the history of Opera from its origins to the present day. Concepts to be examined include: "high" and "low" styles; national styles; gender and race; and function in contemporary Western society.
FORMAT: Lecture
PREREQUISITE: MUSC 3353.03 and MUSC 2352.03, or permission of the instructor
EXCLUSION: MUSC 2011.06 and MUSC 3111.06

MUSC 3353.03: Chamber Music Literature.
A study in depth of chamber music from the Eighteenth century to contemporary schools.
FORMAT: Lecture 3 hours
PREREQUISITE: MUSC 2352.03 or permission of the instructor

MUSC 3355.03: The Piano and its Literature.
A study in depth of the evolution of the piano and its repertoire from the Eighteenth century to the contemporary.
FORMAT: Lecture 3 hours
PREREQUISITE: MUSC 2352.03 or permission of the department

MUSC 3480X/Y.03: Band Instruments.
A practical introduction to the principal band instruments. Group instruction is offered in clarinet, oboe or bassoon, saxophone, trumpet or French horn, trombone and tuba, and percussion.
SIGNATURE REQUIRED
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lab 2 hours
PREREQUISITE: Permission of the Department, and an interview with the Class Coordinator

MUSC 4000 level Applied Study.
Individual studio instruction. May be taken as elective course subject to audition and available space. Please note that all applied study courses require an audition.
Please contact the Fountain School of Performing Arts for audition dates or visit website http://dal.ca/music. Auxiliary fees apply. Co-requisite ensemble participation is required.
• MUSC 4011X/Y.06: Voice IV
• MUSC 4012X/Y.06: Guitar IV
• MUSC 4013X/Y.06: Piano IV
• MUSC 4014X/Y.06: Organ IV
• MUSC 4015X/Y.06: Violin IV
• MUSC 4016X/Y.06: Viola IV
• MUSC 4017X/Y.06: Cello IV
• MUSC 4018X/Y.06: Double Bass IV
• MUSC 4019X/Y.06: Flute IV
• MUSC 4020X/Y.06: Oboe IV
• MUSC 4021X/Y.06: Clarinet IV
• MUSC 4022X/Y.06: Bassoon IV
• MUSC 4023X/Y.06: Saxophone IV
• MUSC 4024X/Y.06: French Horn IV
• MUSC 4025X/Y.06: Trumpet IV
• MUSC 4026X/Y.06: Trombone IV
• MUSC 4027X/Y.06: Tuba IV
• MUSC 4028X/Y.06: Percussion IV

MUSC 4000 level Performance Concentration Applied Study.
Individual studio instruction for students in the BMus Performance Concentration.
Please note that acceptance to the Performance Concentration applied study requires a written application, audition, and permission of the Fountain School of Performing Arts. Auditions take place at the conclusion of the second year of the Bachelor of Music program. Auxiliary fees apply. Co-requisite ensemble participation is required.
• MUSC 4011X/Y.06: Voice IV (Performance)
• MUSC 4012X/Y.06: Guitar IV (Performance)
• MUSC 4013X/Y.06: Piano IV (Performance)
• MUSC 4014X/Y.06: Organ IV (Performance)
• MUSC 4015X/Y.06: Violin IV (Performance)
• MUSC 4016X/Y.06: Viola IV (Performance)
• MUSC 4017X/Y.06: Cello IV (Performance)
• MUSC 4018X/Y.06: Double Bass IV (Performance)
• MUSC 4019X/Y.06: Flute IV (Performance)
• MUSC 4020X/Y.06: Oboe IV (Performance)
• MUSC 4021X/Y.06: Clarinet IV (Performance)
• MUSC 4022X/Y.06: Bassoon IV (Performance)
• MUSC 4023X/Y.06: Saxophone IV (Performance)
• MUSC 4024X/Y.06: French Horn IV (Performance)
• MUSC 4025X/Y.06: Trumpet IV (Performance)
• MUSC 4026X/Y.06: Trombone IV (Performance)
• MUSC 4027X/Y.06: Tuba IV (Performance)
• MUSC 4028X/Y.06: Percussion IV (Performance)

MUSC 4150X/Y.06: Advanced Applied Study.
By special permission of the Fountain School of Performing Arts, a student may enroll in an advanced year of applied study, subject to enrollment quotas and budget. Individual studio instruction. Auxiliary fees apply. Co-requisite ensemble participation is required.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
PREREQUISITE: MUSC 41XX or 47XX and permission of the instructor, subject to budget and current studio capacity

MUSC 4170X/Y.03: Improvisation Techniques and Practices.
A studio course in the techniques and performance skills of improvisation as related to the jazz idiom, and other contemporary and non-Western music; students will perform as soloists and in small ensembles.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Studio 3 hours
PREREQUISITE: 3000-level applied study course, and the approval of the instructor
MUSC 4190X/Y.06: Symphony Apprenticeship.
A student in the Bachelor of Music program who has demonstrated exceptional aptitude and ability in his/her orchestral instrument, approved by the Student Recruitment Committee and employment by Symphony Nova Scotia, will serve an apprenticeship in the Symphony, supervised by his/her Applied Study Instructor. Performance will normally be given to a fourth-year student. Normally the majority of or all of the 34-38 services will be played during the First Term. Qualification for this credit will be subject to the needs of the Symphony, nomination by the Fountain School of Performing Arts, and a successful audition for the Symphony. Artistic Director and relevant Symphony Section Principals. The student will be hired by the Symphony at the current per-service rate, and must be a Member in Good Standing of the Atlantic Federation of Musicians. The student will be guided by his/her supervising Instrument on personal observation and on receipt of a signed evaluation from the Artistic Director of the Symphony. Normally there shall be only one such apprenticeship per season, and it is not renewable.
NOTE: Credit can only be given for the course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Placement in Symphony Nova Scotia, 34-38 Services
PREREQUISITE: Nomination by the Fountain School of Performing Arts; audition with Symphony Artistic Director and relevant Symphony Section Principals.
REINSTRUCTION: Normally limited to a student in the fourth year of the BMus Program Performance Concentration.
MUSC 4199X/Y.03: Area Graduation Requirement (Performance: Recital).
Required of and restricted to all students in the Performance Concentration of the Bachelor of Music program. The recital repertoire should consist of 55 to 75 minutes of music.
NOTE: Credit can only be given for the course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
PREREQUISITE: Permission of the department
MUSC 4210X/Y.06: Composition II.
Open only to students accepted into the BMus Concentration in Composition. Techniques and approaches of today’s music studied through writing of musical works for diverse instruments and ensembles, and through analysis of important works of repertoire. Emphasis will be given to creativity and by practical aspects of musical composition, effectiveness of orchestration, playability, quality of score, and preparation of parts.
SIGNATURE REQUIRED
NOTE: Credit can only be given for the course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Individual lessons and group courses with other Composition students
PREREQUISITE: MUSC 3210X/Y.06 and permission of the instructor
MUSC 4280.03: Contemporary Techniques.
Some of today’s most important compositional techniques will be studied in this course. These may include advanced modal and 12-tone writing, interval and texture-oriented procedures, as well as atonistic strategies. Special attention will be given to problems of notation and instrumentation raised by the above-mentioned approaches.
SIGNATURE REQUIRED
FORMAT: Lecture 3 hours
PREREQUISITE: MUSC 2222.03, 3285.03 or 3284.03
MUSC 4283.03: Early Music Analysis.
A seminar exploring the various approaches to early music analysis, covering chant, early polyphony and music by significant figures before 1600 including Machaut, Dufay and Josquin.
FORMAT: Seminar 3 hours
PREREQUISITE: MUSC 3285.03 or permission of the Instructor
MUSC 4293X/Y.03: Area Graduation Requirement (Performance Recital).
A jury-based assessment of the final requirements for the BMus, Composition Program.
NOTE: Credit can only be given for the course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
PREREQUISITE: Permission of the composition instructor
MUSC 4353.03: Music Since 1945.
This course examines themes in music since 1945. Topics to be considered include compositional techniques, music and cultural theory, and avant garde and mainstream music.
FORMAT: Seminar 3 hours
PREREQUISITE: MUSC 2352, 2353 or permission of instructor
CROSS-LISTING: MUSC 5353
MUSC 4354.03: Popular Music Analysis.
In this course for music majors, we examine various methods and techniques for studying popular music. We consider the central debates of this relatively new field of scholarly inquiry, and we assess the contributions of popular music scholarship to the larger fields of music study.
FORMAT: Seminar 3 hours
PREREQUISITE: MUSC 2352.03, 2353.03 or permission of the instructor
CROSS-LISTING: MUSC 5354
MUSC 4355.03: Narrative Strategies in Nineteenth-Century Music: Gender, Identity, and Social Politics.
An interdisciplinary survey of nineteenth-century instrumental music, focusing on the narrative potential of nineteenth-century musical compositions and their relationship to other aspects of nineteenth-century Western culture. Representative musical works will be studied within the context of broader social and cultural issues, including gender, race, class, sexuality, nationality, ethnicity, and identity.
FORMAT: Seminar 3 hours
PREREQUISITE: Permission of the instructor
CROSS-LISTING: QWST 4535.03, MUSC 5355.03
MUSC 4356.03: Opera Studies.
An examination of current critical issues in opera studies. Specific topics may vary from year to year; examples include ‘Opera and Politics’ and ‘Operas of Mozart on Stage and Screen.’
FORMAT: Seminar 3 hours
PREREQUISITE: MUSC 2392.03. Open to non-majors by permission of instructor
CROSS-LISTING: MUSC 5356.03
MUSC 4358.03/4359.03: Studies in Medieval Music.
An advanced course analysing the role of medieval music. Specific topics will change from year to year, including the musical output and reception of Hildegard von Bingen, the poetry, music and manuscripts of Guillaume de Machaut.
FORMAT: Seminar 3 hours
PREREQUISITE: MUSC 2355 or permission of the instructor
CROSS-LISTING: MUSC 4358.06/4359.06
MUSC 4359.03: Studies in Medieval Music.
An advanced course analysing the role of medieval music. Specific topics will change from year to year, including the musical output and reception of Hildegard von Bingen, the poetry, music and manuscripts of Guillaume de Machaut.
FORMAT: Seminar 3 hours
PREREQUISITE: MUSC 2355 or permission of the instructor
CROSS-LISTING: MUSC 4358.06/4359.06
MUSC 4360X/Y.06: Advanced Seminar in Baroque Culture.
This course offers its students a survey of key aspects of seventeenth and eighteenth-century European history, society and culture along with a first-hand view of some of the most important aspects of baroque style and material culture. It takes place in the town of Coxyde Kaniëvele in the Czech Republic. The course introduces students to the socio-political conditions that led to the birth of baroque civilization before entering into an exploration of the avant garde of the seventeenth and eighteenth-century Europe. It then examines the cultural and artistic forms most characteristic of this period, with particular emphasis on opera history and on the role of the ‘theatrical’ in the Baroque arts. As the course proceeds, students will have an opportunity to consider the connections between course material and the evidence of Baroque culture to be found in the Castle Theatre’s scenographic machinery, its stock of original scenery and props, and its collection of historical costumes, as well as to witness an experimental Baroque opera performance. Finally, the course will conclude with visits to Prague and other sites of interest to add to students’ understanding of the Baroque and its legacy to subsequent periods.
NOTE: Credit can only be given for the course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture/lab
PREREQUISITE: Permission of the Fountain School of Performing Arts and/or the Department of History.
CROSS-LISTING: QWST 4542.06, THEA 4755.06
RESTRUCTION: 3rd and 4th year students only.
MUSC 4361.03/4365.03: Topics in Musicology I.
These are intensive studies which make use of field consultation.
NOTE: Students should check the online university timetable or contact the department for details.
FORMAT: Seminar 3 hours
PREREQUISITE: MUSC 2353
CROSS-LISTING: MUSC 5361
MUSC 4362.03: Topics in Canadian Music.
The course focuses on one or more of the following topics: Canadian composers, performers and musical institutions. The perspective may be analytical, aesthetic and/or historical.
FORMAT: Seminar 3 hours
PREREQUISITE: Permission of instructor
CROSS-LISTING: CANA 4362.03

MUSC 4363.03/4367.03: Topics in Musicology II.
These are intensive studies of selected topics announced annually. Students should check the online university timetable or contact department for details.
FORMAT: Seminar 3 hours
PREREQUISITE: MUSC 2353

MUSC 4364.03/4368.03: Topics in Music.
These are intensive studies of selected topics announced annually.
SIGNATURE REQUIRED
PREREQUISITE: MUSC 1353.03, 2353.03, 2352.03

MUSC 4368.03/4369.03: Topics in Music.
These are intensive studies of selected topics announced annually.
SIGNATURE REQUIRED
PREREQUISITE: MUSC 2352.03

MUSC 4380.03: and MUSC 4381.03: Selected Composer Studies.
An intensive study of a single composer, focusing on works and cultural context.
FORMAT: Lecture/discussions 3 hours
PREREQUISITE: MUSC 2352, MUSC 2353

MUSC 4399X/Y.03: Graduation Requirement (Thesis).
Students must receive Fountain School of Performing Arts approval to fulfill this graduation requirement. Students must submit the required Thesis Form by March 1 of the third year of study, along with any other requirements specific to their degree program. Please see the School for guidelines and deadlines.
SIGNATURE REQUIRED
PREREQUISITE: Permission of the department

MUSC 4599X/Y.03: Graduation Project.
Students in the BMus General degree program must receive the Fountain School of Performing Arts approval to fulfill this graduation requirement. Project proposals must be submitted by students no later than March 1 of the third year of study. For more details on project options and application requirements, please consult the School.
SIGNATURE REQUIRED
PREREQUISITE: Permission of the department

I. Introduction
The Theatre Program at the Fountain School of Performing Arts offers many ways to study the theatre or some aspect of it in tandem with other disciplines offered by the university:
1. You can undertake programs that lead to a university degree: an Honours or Combined Honours BA (four years) or a BA with Major (four years)
2. You can enroll in a Diploma program in Costume Studies (two years) which combines academic study and research skills with creative design interpretation and applied skills;
3. You can complete a Minor in Theatre to enhance your degree.
4. You can select certain theatre courses to reinforce and complement your studies in other disciplines offered by the university.
The degree programs involve a curricular of Theatre courses and a selection of other courses in different disciplines. The University has Academic Regulations which specify how these programs must be arranged. These regulations are all listed earlier in this Calendar, and prospective students should refer to them to become aware of the opportunities offered. There are a surprising number of different ways to arrange one's studies; recommended here are the paths you can follow if Theatre is your primary interest.

Facilities

The Fountain School of Performing Arts is located in the Dalhousie Arts Centre. The Theatre wing is a self-sufficient unit involving one professional theatre, two studios, and supporting workshops. Teaching spaces for costume studies are currently located off-campus. The main Departmental office is in Room 9-32 of the Arts Centre.

Because of the work involved, some theatre courses have a limited enrolment. All students wishing to take any practical course in Theatre should, therefore, first consult with the department.

PLEASE NOTE: Theatre by its nature requires evening work. Students, especially in Acting, Technical Theatre and Stage Design, and Costume courses, are advised not to undertake other evening commitments.

II. Degree Programs

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar.

A. BA Honours in Theatre

1. Theatre Studies

This degree is designed for students who wish to follow a program of theatre studies that keeps the whole of theatre in perspective, is academically oriented, and serves as a strong foundation for graduate degrees in Theatre and Drama, or as a good preparation for a variety of professional and education degrees. Honours students must maintain an average of at least B+ in all of their advanced Theatre courses.

Year 1

• THEA 1000X/Y.06
• one other full course in THEA at 1000-level
• three courses in other subjects

Year 2

• THEA 2011.03
• THEA 2012.03
• THEA 2001.03
• THEA 2002.03
• three full courses in other subjects

Years 3 and 4

• THEA 3000X/Y.06
• THEA 3001.05
• THEA 3002.03
• three full courses in other subjects, including THEA
• two full courses in other subjects, including THEA

An additional credit (the Honours Qualifying Project) consists of fulfilling the function of a dramaturge or assistant director on one of Dal Theatre productions.

NOTE: Applications for Honours in Theatre are not considered by the Fountain School of Performing Arts until the winter term of the student’s third year. Please enquire at the School for the relevant deadline.

2. Acting

The main objective of the Acting Program is to satisfy the needs of those students who have decided to pursue a career as performers in the professional theatre. The program is progressive in nature, culminating in a company of student actors who perform in three shows in the Dal Theatre season in their fourth year, plus a course project. Third-year students in the Acting Program will participate in the third show of the Dal Theatre season. Auditions are held at the end of the first year for admission into the upper years of study. In addition to meeting degree requirements, students must achieve a B+ in all Acting Program courses, and must also be recommended by the Acting Faculty in order to advance to the next year's course of study. The program provides these students with professional training and the benefits of a liberal-arts education at a major Canadian university. Honours students must maintain an average of at least B+ in all of their advanced Theatre courses.

Year 1

• THEA 1000X/Y.06
• THEA 1001X/Y.06
• three full courses in other subjects

Year 2

• THEA 2011.03
• THEA 2012.03
• THEA 2000X/Y.06
• THEA 2010X/Y.06
• THEA 2020X/Y.06
• one full elective in other subject

Year 3

• THEA 3000X/Y.06
• THEA 3010X/Y.06
• THEA 3020X/Y.06
• THEA 3030X/Y.06
• one full elective in other subject

Year 4

• THEA 4000X/Y.06
• THEA 4010X/Y.06
• THEA 3011.03
• THEA 3012.03
• two courses in other subjects (one of these can be in THEA)

Honours Acting students will qualify for Honours with the satisfactory completion of a professional portfolio.

NOTE: Applications for Honours in Theatre are not considered by the Fountain School of Performing Arts until the winter term of the student’s third year. Please enquire at the School for the relevant deadline.

3. Technical Theatre and Stage Design

This degree is designed for students wishing to pursue careers in technical theatre and stage design. This section encompasses all areas of specialization that work together in the production of live performance. Set design, scenic carpentry, scenic painting, lighting, sound, props and stage management are taught through lectures and hands-on labs. Students in the first year of the program are required to work on one Dal Theatre production, and those in second and third years work on four Dal Theatre productions each year. All students must maintain at least a B average in all Technical Theatre and Stage Design courses to move on to the next year, and Honours students must maintain an average of at least B+ in all their advanced Theatre courses.

Year 1

• THEA 1000X/Y.06
• THEA 1010X/Y.06
• three full courses in other subjects

Year 2

• THEA 2011.03
• THEA 2012.03
• THEA 2000X/Y.06
• THEA 2010X/Y.06
• THEA 2020X/Y.06
• one full elective in other subject

Year 3

• THEA 3000X/Y.06
• THEA 3010X/Y.06
• THEA 3020X/Y.06
• THEA 3030X/Y.06
• two courses in other subjects

204 Theatre - Fountain School of Performing Arts
Undergraduate book  Page 205  Wednesday, March 12, 2014  12:03 PM

The Theatre and another subject, please consult the relevant departments’ more specific instructions on how to set up a Combined Honours degree in Theatre degrees with a number of other disciplines at the two institutions. For Dalhousie and University of King’s College students can also combine their B. BA Combined Honours School of Performing Arts until the winter term of the student’s third year. Please NOTE: Applications for Honours in Theatre are not considered by the Fountain the theatrical costume or historical dress. Project upon successful completion of a 25-page research paper on an aspect of for required courses that take place at NSCAD University.

Upon acceptance into their program, students should contact the undergraduate Undergraduate Advisors. In principle, a student who wishes to graduate with this degree must complete at least THEA 2011.03, 2012.03, 3501.03, and 3502.03, and must fulfill at least the minimal requirements for a three year BA. They must have, in the two subjects combined, the required distribution of courses.

1. Music and Theatre

The Fountain School of Performing Arts offers a highly specialized four year BA with a Combined Honours in Music and Theatre which blends the principal courses of the Bachelor of Music Minor in Voice with Theatre courses in Acting and Movement. Students must audition for both the Music and Theatre Departments: a maximum of five students will be selected for entrance into the program each year. The graduate of this program will advance toward a professional career in the performing arts equipped with a foundation in music and theatre. Please refer to “BA with Combined Honours in Music and Theatre” on page 195 for requirements.

C. BA (20 credit) Major in Theatre

A student may take a 20 credit Major program in Theatre (in Theatre Studies, Acting, Scenography and Technical Scenography or Costume Studies), following consultation with the Departmental Undergraduate Advisor. As in the case of a BA with Combined Honours, it is also possible to set up a Double Major in Theatre and another subject. In this case, a student must complete at least THEA 2011.03, 2012.03, 3501.03, and 3502.03 and fulfill at least the minimal requirements for a three year BA. They must have the required distribution of courses in the two majoring subjects as outlined in the Degree Requirements section of this Calendar.

D. BA (15 credit) Minor in Theatre

This degree is designed for students who want to take a number of courses in Theatre, would like to acquire a broad and varied knowledge of its various aspects, or are not interested in specializing. Students are advised to take THEA 1000X/Y and one other full credit in THEA at the 1000 level, although these do not count toward the minor. See Minors in the College of Arts and Science section of this calendar (page 128).

E. Minor in Theatre

See Minors in the College of Arts and Science section of this calendar (page 128).

F. Costume Studies, Diploma in two years

After successful completion of this program, students may upgrade their DCS to a BA in Theatre (Costume Studies). Students pursuing the Diploma in Costume Studies are required to combine the courses in the following manner:

Year 1
- THEA 1000X/Y.06
- THEA 1401X/Y.06
- THEA 1454.03
- THEA 1455.03
- two full courses in other subjects

Year 2
- THEA 1501.03
- THEA 1502.03
- THEA 4400X/Y.06
- THEA 4450.03
- THEA 4452.03
- two full courses in another subject

Upon acceptance into their program, students should contact the undergraduate advisor in the Fountain School of Performing Arts for information on registering for required courses that take place at NSCAD University.

Honours students in Costume Studies will be awarded the Honours Qualifying Project upon successful completion of a 25-page research paper on an aspect of theatrical costume or historical dress. NOTE: Applications for Honours in Theatre are not considered by the Fountain School of Performing Arts until the winter term of the student’s third year. Please consult the School for the relevant deadline.

B. BA Combined Honours

Dalhousie and University of King’s College students can also combine their Theatre degrees with a number of other disciplines at the two institutions. For more specific instructions on how to set up a Combined Honours degree in Theatre and another subject, please consult the relevant departments’ II. Course Descriptions

NOTE: Not all courses are offered every year. Please consult the current timetable to determine if these courses are offered in the current year.

THEA 1000X/Y.06: Introduction to Theatre.

The purpose of this course is twofold: first, to introduce students to the study of theatre through analysis of a range of plays related to the Dalh Theatre season; and second, to instruct students in the methodology of writing in the humanities. Students will learn about the theatrical production process and practice skills of
script and performance analysis. Students will address specific problems within their papers and discuss questions on an individual basis in writing tutorials. This course requires a script writing requirement of Dalhousie University and is a prerequisite for all Theatre majors.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Writing Requirement. Lecture/internal 3 hours

THEA 1050X/Y.06: Introduction to Theatre Organization and Stagecraft.

This course takes the student behind the scenes to understand how a play is brought to life. Scenography is discussed and explored. Students are introduced to stage design and scenic carpentry, props, sound, lighting, stage management and costume. Methods and procedures for theatre productions make up the substance of this course. Students are expected to work with power tools and are required to work on one DalTheatre production, which will include evening and weekend work outside of class time. Some supplementary equipment is required for this course.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture 2 hours, lab 4 hours

THEA 1300X/Y.06: Introduction to Film.

This course is a general introduction to film studies. It examines film genres and history, the component elements of film, the diversity of cinema industries and institutions, and the medium's impact on society. It also instructs students in the methodology of writing in the humanities and fulfills the writing requirement of Dalhousie University.

NOTE: Students taking this course must register in both X and Y in consecutive terms, credit will be given only if both are completed consecutively.

FORMAT: Writing Requirement. Lecture/internal 3 hours

THEA 1450X/Y.06: Introduction to Costume Studies.

This course serves as an introduction to costume in its broadest context, enabling students to acquire a basic understandling of creating costume for the stage. Both modern and historical costume creation techniques are explored and mastered by students in preparation for more advanced study of costume in subsequent years of the Costume Studies Program. This course includes a theatre component. This course is a prerequisite for all other Costume Studies courses.

NOTE: Students taking this course must register in both X and Y in consecutive terms, credit will be given only if both are completed consecutively.

FORMAT: Lecture lab 3 hours

THEA 1800X/Y.06: Introduction to Acting and Performance.

This course is designed to provide the beginning acting student with an understanding of what it is to act, and to introduce some basic performance techniques. The approach will be practical, focusing on three major aspects of the craft: Space, Character, and Action. Each unit will be comprised of exercises and scene study, with scripts ranging from classical to contemporary. Exercises and exercises in class, which require commitment, concentration, and full-hearted participation, and which are central to group work and ensemble play, will strengthen communication and teamwork, and will develop and expand students' skills. Students will challenge themselves physically, vocally, and imaginatively, while working with others to create a dynamic environment.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms, credit will be given only if both are completed consecutively.

FORMAT: Lecture lab 3 hours


This course is designed to provide experience in performance outside the Acting Program. Through practical theatre exercises and performance assignments, students experience and discuss elements which contribute to theatre performance. This course will not serve as a prerequisite to the Acting Program, but is suitable for students who have completed THEA 1000, or any student interested in cultivating self-confidence, communication, and performance skills.

NOTE: Students taking this course must register in both X and Y in consecutive terms, credit will be given only if both are completed consecutively.

FORMAT: Lecture lab 3 hours

RESTRICTION: Students cannot register for THEA 1800 and THEA 2000 at the same time.

THEA 2011.03: Classical Theatre.

This course gives students an opportunity to study the dramatic literature, staging practices, and theoretical foundations of the early history of theatre. Specific topics covered include ancient Greek, Roman, and medieval European performance, as well as classical Indian and Japanese theatres. Although there is no formal prerequisite for the course, the course is strongly recommended for students planning to take classical drama courses in subsequent years of study. A background in theatre, history, and/or dramatic literature will be an advantage.

FORMAT: Lecture/seminar 3 hours

THEA 2012.03: Early Modern Theatre.

This course is in a sense the sequel to THEA 2011.03, though that course is not a prerequisite. It aims to study the development of dramatic literature, staging practices, and criticism from the theatres of the Italian Renaissance and of Shakespeare to European Romanticism, as well as early modern Asian theatres. There is no formal prerequisite, but students should normally be in at least the second year of study. A background in history, theatre, and/or dramatic literature will be an advantage.

FORMAT: Lecture/seminar 3 hours

THEA 2020.06: Jazz Dance I (Spring Session Only).

This course is a practical exploration into the Luigi Jazz Dance technique, incorporating the use of space, rhythm, and correct body alignment. Emphasis is on the development of personal expression through the medium of dance. Students are expected to develop an awareness of dance terminology and vocabulary.

FORMAT: Lab/demonstration lecture

CROSS-LISTING: MUSC 21010.06

THEA 2060X/Y.06: Technical Theatre I.

This course builds on the fundamentals acquired in THEA 1050 and is a supplement to Performance Technology I. Lectures and labs include theory development in the areas of props, lighting, sound, set design, scenic construction, and stage management.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture/lab 9 hours

PREREQUISITE: THEA 1050X/Y.06

CO-REQUISITE: THEA 1450X/Y.06

THEA 2070X/Y.06: Performance Technology I.

This course is concerned with the more complex problems of the preparation of theatre production. A greater focus will be given to applying learned knowledge in a practical setting, with mandatory crew requirements in at least four Dalhousie Theatre productions. These productions will require work outside of class time on evenings and weekends. This course is the practical application of THEA 2060X/Y.06.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lab 6 hours

PREREQUISITE: THEA 1050X/Y.06

THEA 2214X/Y.06: Shakespeare.

An introduction to Shakespeare's career as a playwright, through discussion and interpretation of a dozen or more of his plays.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture/discussion

CROSS-LISTING: ENGL 2214X/Y.06

PREREQUISITE: ENGL 1000/1005X/Y.06; or any two of ENGL 1010.03, 1020.03, 1040.03, or THEA 1000X/Y.06; or the King's Foundation Year Program.

THEA 2229.03: Tragedy.

This course studies a representative selection of texts from various historical periods in order to arrive at an understanding of the meaning of tragedy. Various definitions of tragedy will be examined along with such possible questions as: how has tragedy changed over time, and what is tragicomedy.

FORMAT: Lecture/seminars

CROSS-LISTING: ENGL 2229.03

EXCLUSION: ENGL 2220.06
THEA 2301.03: Film History I.
This course surveys the history of film from its invention in the 1890s to the 1950s. Students will learn about the aesthetic, social and technological changes that affected the development of cinema. The course includes the study of silent film and the Classical Hollywood cinema, as well as artistic movements such as Expressionism and Soviet Montage.
FORMAT: Lecture/discussion
EXCLUSION: THEA 2300X/Y.06 and NSCAD AHIS 2600.03

THEA 2311.03: Film Analysis.
This course introduces students to the close textual analysis of narrative films. To this end, a few films will be studied in depth. Formal elements, such as mise-en-scène, sound, cinematography, and editing, will be analyzed and situated in social and historical context. Through screenings, readings, lectures, discussions and exercises, students will develop their technical vocabulary and skills in film interpretation.
FORMAT: Lecture/discussion

THEA 2314.03: Survey of Italian Cinema.
Course to be held in English, with part of the course work in Italian for Italian majors. Survey of the Italian Cinema from the origins onwards. Focus: the "golden age" of Italian silent movies; visual culture under fascism; Italian neo-realism; the impact of television.
FORMAT: Lecture
CROSS-LISTING: ITAL 2600.05

THEA 2336.03: Russian Film I.
The course surveys Russian film from the Silent Era to "Thaw" (1900-1960s). Its goal is to develop students' knowledge of cinema in its historical and cultural context through close watching, reading, thinking, and writing. The course will concentrate on the development of main genres and styles in Russian and official Soviet Cinema, major directors and styles. Full versions of films will be screened each Monday night. Later in the week they will be followed by a lecture, discussion, and viewing additional short clips.
FORMAT: Lecture/discussion
CROSS-LISTING: RUSN 2046.03

THEA 2337.03: Russian Film II.
This course will provide an overview of the most significant trends and periods in the development of Russian cinema, including the latest productions.
The course will concentrate on the development of main genres and styles, major directors and productions, issues of race, gender, war and violence in Soviet, post-Soviet and new Russian cinema.
FORMAT: Lecture

CROSS-LISTING: RUSN 2057.05

THEA 2346.03: East European Cinema: War, Love, and Revolutions.
This course introduces the Eastern European film into the flow of current debates on cultural identity, transnationalism, and postcolonialism. Despite the state controlled film industry of Eastern Europe, it was often more bold, honest and provocative than their Hollywood counterparts. This course will focus on key films and issues related to the development of Eastern European cinema as a cultural product.
The course will concentrate on the development of main genres and styles, major directors and productions, issues of race, gender, war and violence in Soviet, post-Soviet and new Russian cinema.
CROSS-LISTING: RUSN 2036

THEA 2350.03: Studies in Film Directors.
This course focuses on the study of individual film directors. Through the analysis of their work, students will develop their understanding of the film industry and the cultural context in which films are produced.
FORMAT: Lecture/discussion
CROSS-LISTING: RUSN 2056.06

THEA 2360.03: Popular Cinema.
This course helps students develop their critical understanding of popular cinema. It introduces different approaches to the analysis of popular film, and considers principles of production, distribution, exhibition and consumption in major industries such as Hollywood and popular Hindi and Hong Kong cinemas. Throughout, it addresses the implications of the concept of "popular cinema."
FORMAT: Lecture/discussion
EXCLUSION: THEA 2320.06

THEA 2370.03: Animated Film.
This course is an overview of different forms of animated film and key topics and debates in the field of animation studies. Emphasis is on Canadian, US American and Japanese animation, but examples will be drawn from a variety of regions, and will range from old to new and popular to experimental. The course will focus on cultural approaches, theoretical questions posed by specific types of animation, and historical developments.
FORMAT: Lecture, discussion, screening

THEA 2400X/Y.06: Cave to Café: Costume and Identity from Antiquity to 1700.
An introduction to the study of human social behavior and its relationship to the development of body coverings, this survey course begins with the earliest Mediterranean cultures, Ancient Egypt, Greece and Rome, and continues through to the end of the seventeenth century. This course may be taken by general BA students, and is also part of the Costume Studies Program.
NOTE: Credit can only be given for one of these courses (X or Y) and partial credit cannot be given for a single term.
FORMAT: Lecture/discussion 3 hours
PREREQUISITE: General BA students must have completed the writing requirement.
FOR BA in Theatre (Costume Studies) students: THEA 1000X/Y.06, THEA 1400X/Y.06
FOR Diplomas in Costume Studies: Costume Studies coursework combinations.

THEA 2406X/Y.06: The Aesthetics of Contemporary Dress.
By examining the aesthetics of contemporary dress, this course will enable the student to understand established systems used to create clothing, utilizing body image as principle means. Through the study and application of systematic principles, the student will gain a better understanding of people's need to define body image in terms of ornamental self-expression and social identification. This course is also part of the Costume Studies Program.
NOTE: Credit can only be given for one of these courses (X or Y) and partial credit cannot be given for a single term.
FORMAT: Lecture/lab 4.5 hours
PREREQUISITE: For BA in Theatre (Costume Studies) students: THEA 1000X/Y.06, THEA 1400X/Y.06
FOR Diplomas in Costume Studies: Costume Studies coursework combinations.

THEA 2411.03: Designers' Language.
This course explores components of costume design, offering a discourse on design language, color theory, structure, and decoration as they relate to costumes for the theatre. Through lecture and practical application, the student will learn how to design costumes, choose fabrics, interpret scripts and develop characters, leading to a better understanding of theatrical characterization. This course may be taken by general BA students, and is also a part of the Costume Studies Program.
FORMAT: Lecture/demonstration 3 hours
PREREQUISITE: General BA students must have completed the writing requirement.
FOR BA in Theatre (Costume Studies) students: THEA 1000X/Y.06, THEA 1400X/Y.06
FOR Diplomas in Costume Studies: Costume Studies coursework combinations.

THEA 2451.03: Costume in Performance I.
In this year the student will apply the knowledge from THEA 1400X/Y to research, illustrate and create modern and historical costume designs for the stage. In addition, students work on productions in order to understand the integral role played by costume in staging a play, in an actor's character development, and in body image and representation.
This course is part of the Costume Studies Program.
FORMAT: Lecture 3 hours
PREREQUISITE: For BA in Theatre (Costume Studies) students: THEA 1000.06, THEA 1450.06
FOR Diplomas in Costume Studies: Costume Studies coursework combinations.

THEA 2451.03: Costume in Performance II.
This year the student will apply the knowledge from THEA 1400X/Y to research, illustrate and create modern and historical costume designs for the stage. In addition, students work on productions in order to understand the integral role played by costume in staging a play, in an actor's character development, and in body image and representation.
This course is part of the Costume Studies Program.
FORMAT: Lecture 3 hours
PREREQUISITE: For BA in Theatre (Costume Studies) students: THEA 1000.06, THEA 1450.06
FOR Diplomas in Costume Studies: Costume Studies coursework combinations.
THEA 2700X/Y.06: Stage Design I.
This course is designed to acquaint the student with the language, techniques and conventions involved in the field of stage design. In the first semester, students will develop basic skills in visual composition, watermedia and drafting. In the second half, model building, text analysis, research and three-dimensional space development will be taught. Assignments will emphasize practical skills and will culminate in a full design process.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture/lab 3 hours
PREREQUISITE: THEA 1050X/Y.06 or permission of the instructor

THEA 2800X/Y.06/THEA 2810X/Y.06/THEA 2820X/Y.06: The Discovery Year.
The purpose of the Acting Program introduces students to the fundamental principles of acting through the study of Shakespearean text, voice and movement. Emphasis is placed on the discipline and dedication that is the basis for a career in the professional theatre. In addition to meeting degree requirements, students must achieve A in all Acting Program courses, and must also be recommended by the Acting Faculty in order to advance to the next year’s class of study.

NOTE: Students taking these courses must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.

THEA 2800X/Y.06: Acting I.
The second year of the Acting Program introduces students to classical theatre performance approaches through the exploration of the texts of William Shakespeare. Using his sonnets, soliloquies and scenes, students will discover Shakespeare’s language, techniques and conventions. The course is the continued practical exploration into the Luigi Jazz Dance Technique at the intermediate level. Emphasis is on the development of personal expression through the medium of dance. Students must have a basic foundation in dance technique.

PREREQUISITE: ENGL 1000X/Y.06; or any two of ENGL 1010.03, 1020.03, 1030.03, or THEA 1000.06; or the King’s Foundation Year Program

THEA 2901.03: Renaissance Drama.
This course will explore the richness and strangeness of some of the playwrights often obscured by Shakespeare’s shadow. Between the opening of the first professional playhouse in London (1576) and the closing of the theatre by Parliament (1641), the Globe was only one of many venues catering to an avid theatre-going public, and the first English play by a woman was circulated in manuscript. Playwrights to be studied include Christopher Marlowe, Ben Jonson, Thomas Middleton, John Webster, Elizabeth Cary and John Ford.

PREREQUISITE: ENGL 1000X/Y.06 or permission of the instructor

THEA 2902.03: Play Analysis for Directing.
This course introduces students to the director’s process in analyzing a dramatic script for performance. Working with plays from a range of periods and genres, students will explore key theoretical approaches to dramatic analysis, and will learn the director’s core vocabulary, and will apply these discoveries to practical scene study.

FORMAT: Lecture/summer 3 hours
PREREQUISITE: THEA 1000X/Y.06 or Permission of the Instructor
EXCLUSION: THEA 2900.06

THEA 2911.03: Stars and Stardom on Stage and Screen.
What makes a “star” actor? How do stars’ gifts and alieneness interact with the possibilities of their media and with market forces to create celebrity? This course explores stage and screen stardom as historical, aesthetic, and economic phenomena that illuminate shifting constructions of beauty, class, gender, sexuality, race, and ethnicity.

FORMAT: Lecture/discussion 3 hours

THEA 3015.03: Revue: Theatrical Production.
This course will explore the richness and strangeness of some of the playwrights often obscured by Shakespeare’s shadow. Between the opening of the first professional playhouse in London (1576) and the closing of the theatre by Parliament (1641), the Globe was only one of many venues catering to an avid theatre-going public, and the first English play by a woman was circulated in manuscript. Playwrights to be studied include Christopher Marlowe, Ben Jonson, Thomas Middleton, John Webster, Elizabeth Cary and John Ford.

PREREQUISITE: ENGL 1000X/Y.06 or any two of ENGL 1010.03, 1020.03, 1030.03, or THEA 1000.06; or the King’s Foundation Year Program

EXCLUSION: THEA 2900.06

CROSS-LISTING: ENGL 3105.03

THEA 3020.06: Jazz Dance II. (Spring Session only).
The course is the continued practical exploration into the Luigi Jazz Dance Technique at the intermediate level. Emphasis is on the development of personal expression through the medium of dance. Students must have a basic foundation in dance technique.

PREREQUISITE: THEA 1050X/Y.06 and audition

THEA 3020X/Y.06: Dance and Movement I.
The course is designed to develop and enhance the acting student’s practical knowledge of movement through the disciplines of dance. This is manifested through practical explorations of the Luigi jazz dance technique, incorporating the use of space, rhythm, and correct body alignment. Students are expected to develop a working vocabulary of dance terminology.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture/lab 3 hours

THEA 3021X/Y.06: Dance and Movement II.
The course is designed to develop and enhance the acting student’s practical knowledge of movement through the disciplines of dance. This is manifested through practical explorations of the Luigi jazz dance technique, incorporating the use of space, rhythm, and correct body alignment. Students are expected to develop a working vocabulary of dance terminology.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture 3 hours
PREREQUISITE: THEA 1050X/Y.06 and audition

THEA 3041.03: Speak With Confidence: Voice for Non-Majors.
This course is designed to enable the student to use the speaking voice effectively, to communicate freely and easily, with clarity and conviction, thereby strengthening his or her presentation skills. This course will be practical in nature. Exercises and explorations will initially be centered on group dynamics and will require commitment, concentration and full-bodied participation. Many aspects of voice use will be covered, including release of the body, alignment of the spine, breathing, resonance, pitch, volume and power, articulation, working with an intention, and care of the voice. The focus of the course will be on self-discovery as well as awareness of others. Students will also have the opportunity to make individual presentations and receive feedback accordingly. Guest speakers/actors may be invited to visit the classroom.

FORMAT: Lecture/lab 2 hours

THEA 2901.03: Production Dramaturgy.
This course introduces students to the dramaturgical work of dramaturges and directors in the theatre. Students will learn skills including the presentation of research, the preparation of playtexts, the adapting of playtexts for new theatrical contexts, and the creation of theatrical seasons and programs.

FORMAT: Lecture/discussion
PREREQUISITE: THEA 1000X/Y.06 or permission of the instructor
EXCLUSION: THEA 2900.06

THEA 2902.03: Play Analysis for Directing.
This course introduces students to the director’s process in analyzing a dramatic script for performance. Working with plays from a range of periods and genres, students will explore key theoretical approaches to dramatic analysis, and will learn the director’s core vocabulary, and will apply these discoveries to practical scene study.

FORMAT: Lecture/summer 3 hours
PREREQUISITE: THEA 1000X/Y.06 or Permission of the Instructor
EXCLUSION: THEA 2900.06

THEA 2911.03: Stars and Stardom on Stage and Screen.
What makes a “star” actor? How do stars’ gifts and alieneness interact with the possibilities of their media and with market forces to create celebrity? This course explores stage and screen stardom as historical, aesthetic, and economic phenomena that illuminate shifting constructions of beauty, class, gender, sexuality, race, and ethnicity.

FORMAT: Lecture/discussion 3 hours

THEA 3015.03: Revue: Theatrical Production.
This course will explore the richness and strangeness of some of the playwrights often obscured by Shakespeare’s shadow. Between the opening of the first professional playhouse in London (1576) and the closing of the theatre by Parliament (1641), the Globe was only one of many venues catering to an avid theatre-going public, and the first English play by a woman was circulated in manuscript. Playwrights to be studied include Christopher Marlowe, Ben Jonson, Thomas Middleton, John Webster, Elizabeth Cary and John Ford.

PREREQUISITE: ENGL 1000X/Y.06 or any two of ENGL 1010.03, 1020.03, 1030.03, or THEA 1000.06; or the King’s Foundation Year Program

EXCLUSION: THEA 2900.06

CROSS-LISTING: ENGL 3105.03

THEA 3020.06: Jazz Dance II. (Spring Session only).
The course is the continued practical exploration into the Luigi Jazz Dance Technique at the intermediate level. Emphasis is on the development of personal expression through the medium of dance. Students must have a basic foundation in dance technique.

PREREQUISITE: Lab/demonstration/lecture

THEA 3020X/Y.06: Performance Technology II.
This course is designed to supplement Performance Technology II and is a continuation of THEA 2060X/Y.06 covering the topics in greater detail.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture/lab 3 hours
PREREQUISITE: THEA 2060X/Y.06, THEA 3070X/Y.06
CO-REQUISITE: THEA 3070X/Y.06

THEA 3070X/Y.06: Performance Technology II.
This is an advanced course in production technology. Students work intensively in the areas of scenic carpentry, scenic painting, props, lighting and sound, and stage management. Students are required to work on four (4) Dalhousie Theatre productions. These productions will require work outside of class time, on evenings and weekends.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lab 6 hours
PREREQUISITE: THEA 2060X/Y.06, THEA 3070X/Y.06
CO-REQUISITE: THEA 3060X/Y.06
THEA 3200X/Y.06: The Director in the Theatre.
This course explores the theoretical and practical aspects of the various roles of the director in creating a theatrical event. Topics include the historical role of the director, conceptually scripting, working with a dramatic, relationships with actors, and the script development process. Laboratory exploration of practical problems related to the above topics will form an integral part of the course.
NOTE: Credit can only be given for the course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture/lab 3 hours
PREREQUISITE: THEA 2311, THEA 2902, and permission of the instructor

THEA 3301.03: Film History II.
This course surveys the history of film from the 1950s until the present day. Students will learn about the aesthetic, social, and technological changes that affected the development of cinema. The course includes the study of radical 1960s movements such as the French New Wave, and the birth of auteur cinema in the European and Hollywood film industries. It also introduces students to the concept of national cinema with a study of global film industries, and concludes with a study of the digital revolution in contemporary cinema.
FORMAT: Lecture/discussion

THEA 3313.03: Documentary, Experimental and Animated Film.
This course introduces students to the historical, social, ethical, and aesthetic dimensions of documentary, experimental and animated cinema. The course is taught through lectures, discussions, film screenings and readings.
FORMAT: Lecture/discussion
PREREQUISITE: THEA 2311, the course instructor or permission of the instructor
EXCLUSION: THEA 2300X/Y and NSCAD AHIS 2810.03

THEA 3314.03: Shakespeare and his Contemporaries on Film.
This course will study the adaptation of Shakespeare and his contemporaries to the medium of cinema, focusing on the differences between theatre and cinema, the process of theatrical adaptation, the use of classical terms to modern settings, and the close analysis of the performer's choices.
FORMAT: Lecture/reading
PREREQUISITE: Experience in Shakespeare at any level OR experience in Film Studies at any level.
CROSS-LISTING: ENGL 3314.05
EXCLUSION: THEA 2311, ENGL 2313.03

THEA 3320.03: Italian National Cinema.
The focus of the course: the New Wave of Italian cinema, which has received international recognition since the 1960s. The aim to investigate Italian film production within the social and cultural climate of contemporary Italy.
FORMAT: Lecture/summar
PREREQUISITE: ITAL 1010
CROSS-LISTING: ITAL 3619

THEA 3330.03: Film Theory I.
This course will survey and discuss the major cinematic theories of the twentieth century: from formalism and realism to Lacanian psychoanalysis and post-structuralism, from film semiotics and feminist theory to postmodern debates and approaches which define new terminology and new methodologies for the study of the moving images.
FORMAT: Art&5570 Lecture/Discussion
PREREQUISITE: Preveiw Film Studies course or permission of the instructor

THEA 3331.03: Film Theory II: Desire in Cinema.
This course focuses on theories of gender, sexuality and desire in the cinema. It addresses debates around the representation of gender, sexuality and desire on screen, as well as theories of spectatorial desire.
FORMAT: Art&5790 Lecture/Discussion

THEA 3350.03: Topics in Asian Cinema.
Each year will focus on specific topics as explored in the cinema of various Asian countries. Particular attention will be paid to how Asian filmmakers employ different cinematic genres in their treatments of diverse aspects of Asian societies and cultures.
FORMAT: Film screening with lecture/discussion

THEA 3351.03: The Cinema of David Lynch.
David Lynch is one of the most fascinating filmmakers alive today. His work includes relatively mainstream and popular successes, such as The Elephant Man and the TV series Twin Peaks, along with more difficult film-films such as Eraserhead, Lost Highway, and Mulholland Drive. In this course, students will engage in close analysis of Lynch’s work, his cinematic style, and his imperfections.
FORMAT: Lecture/discussion
PREREQUISITE: Any of the core courses in the Film Studies Minor (THEA 2301, 2311, 3301, 3313) or permission of the instructor
EXCLUSION: THEA 3311X/Y.06

THEA 3371.03: Experimental Film.
This is a survey of experimental cinema. The films-studied attempt to revise the basic grammar of film, they do not assume that film is about narrative or even representation, but that it is a fundamentally visual art, often closer to painting or printmaking than to the novel or the theatre. The course will cover films from a range of time periods and regions, and examine a variety of experimental movements.
FORMAT: Lecture, discussion, screening
PREREQUISITE: THEA 2311

THEA 3400X/Y.06: Dress and Identity: King’s Court to Mass Culture, 1700–Present.
This is a survey course which will trace the development of dress through the eighteenth, nineteenth, and twentieth centuries, showing its evolution from the period when the fashion aesthetic was determined by the Courts, to the time of the rise of the common–man as the arbiter of taste. Concentration in this course will be placed on dress worn in England and France, but students may explore costume from other countries as individual topics of research. Emphasis will be placed on the social and cultural aspects of dress history, using studies of representative works of art, films, and artifacts as visual documentation for each period.
NOTE: Students registering in this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.
FORMAT: Lecture 3 hours
PREREQUISITE: General BA students must have completed the writing requirement. For BA in Theatre (Costume Studies) students: THEA 1000X/Y.06, 1450X/Y.06, 2011.03, 2012.03, 2400X/Y.06, 2404X/Y.06, 2411.03, 2413X/Y.03.
For Diplomas in Costume Studies, see Costume Studies course combinations in calendar.
EXCLUSION: THEA 4400X/Y.06

THEA 3451X/Y.06: Costume in Performance II.
In this course students will demonstrate their fluency in costume creation with design interpretations for theatrical production. Students will examine problems related to costume as an expression and extension of theatrical character development. The Theatre Production department provides a venue for students to develop interpersonal and technical skills. Students will work as an integral part of a team. This course is part of the Costume Studies Program.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture/lab 3 hours
PREREQUISITE: For BA in Theatre (Costume Studies) students: THEA 1000X/Y.06, 1450X/Y.06, 2011.03, 2012.03, 2400X/Y.06, 2404X/Y.06, 2411.03, 2413X/Y.03.
For Diplomas in Costume Studies, see Costume Studies course combinations.
EXCLUSION: THEA 3540.06
RESTRICTION: Costume Studies degree or diploma students only.

THEA 3544.03: Body-Shaping Through Historical Tailoring II.
This course introduces the student to the process of tailoring as it originated in the Renaissance, and its development down to the twentieth century. Emphasis is placed on the purpose of underpinnings, understructures and the techniques of fitting them in place. This course is part of the Costume Studies Program.
PREREQUISITE: For BA in Theatre (Costume Studies) students: THEA 1000X/Y.06, THEA 1450X/Y.06, THEA 2111.03, THEA 2012.03, THEA 2400X/Y.06, THEA 2404X/Y.06, THEA 2411.03, 2413X/Y.03.
For Diplomas in Costume Studies, see Costume Studies course combinations.
RESTRICTION: Costume Studies degree or diploma students only.
The "Systems" of Pattern Drafting from the early nineteenth century to the twentieth century. Utilizing traditional tailoring techniques, the process of creating professional tailored garments is studied in detail. This course is part of the Costume Studies Program.

**THEA 3455.X/Y.06: Body-Shaping Through Historical Tailoring I.**

The course will focus on historical tailoring methods from the early eighteenth century to the present day. Students will learn how to create garments that fit the body's natural contours, using traditional tailoring techniques. This course is part of the Costume Studies Program.

**THEA 3500.X/Y.06: The Modern Theatre.**

From the rise of realism in the 1870s to the emergence of postmodern performance one hundred years later, modern theatre was characterized by successive bursts of creative energy and experimentation. This course gives an opportunity to study these developments in detail and to examine several important theatrical theories and their applications. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

**THEA 3501.X/Y.06: The Modern Theatre 1: Realism and Expressionism.**

From the close of WW1 to the 1960s, theatrical modernists sought new artistic forms for a rapidly changing world. This course introduces students to major forms of theatrical modernism from Dada and Theatre of Cruelty through Epic Theatre and Biomechanics to Absurdism, and considers their legacy for the forms of theatrical modernism from Dada and Theatre of Cruelty through Epic Theatre and Biomechanics to Absurdism, and considers their legacy for the twentieth century. Utilizing traditional tailoring techniques, the process of creating professional tailored garments is studied in detail. This course is part of the Costume Studies Program.

**THEA 3502.X/Y.06: The Modern Theatre 2: High Modernism.**

This course aims to strengthen the actor's instrument and creative response, while further developing acting technique through practical experience in Mask, Mime and Period Study. "Actioning" is expanded upon to include Script Analysis, with materials being drawn from classical and contemporary texts, ensuring that the "inner" work of characterization feeds the "outer" work, and vice versa. NOTE: Students taking these courses must register in both X and Y in consecutive terms and partial credit cannot be given for a single term.

**THEA 3503.X/Y.06: The Modern Theatre 3: Epic Theatre.**

This course will focus on the development of epic theatre from the early twentieth century to the present day. Students will learn how to create performances that engage the audience on a large scale. This course is part of the Costume Studies Program.

**THEA 3504.X/Y.06: The Modern Theatre 4: Absurdism.**

This course will focus on the development of absurdist theatre from the early twentieth century to the present day. Students will learn how to create performances that explore the human condition in a non-traditional way. This course is part of the Costume Studies Program.

**THEA 3505.X/Y.06: The Modern Theatre 5: Deconstruction.**

This course will focus on the development of deconstructivist theatre from the early twentieth century to the present day. Students will learn how to create performances that challenge traditional notions of theatre. This course is part of the Costume Studies Program.

**THEA 3506.X/Y.06: The Modern Theatre 6: Postmodernism.**

This course will focus on the development of postmodern theatre from the late twentieth century to the present day. Students will learn how to create performances that challenge and subvert traditional theatre conventions. This course is part of the Costume Studies Program.

**THEA 3507.X/Y.06: The Modern Theatre 7: Contemporary Theatre.**

This course will focus on the development of contemporary theatre from the late twentieth century to the present day. Students will learn how to create performances that reflect and comment on current social and political issues. This course is part of the Costume Studies Program.

**THEA 3508.X/Y.06: The Modern Theatre 8: Global Theatre.**

This course will focus on the development of global theatre from the late twentieth century to the present day. Students will learn how to create performances that reflect and comment on current cultural and political issues. This course is part of the Costume Studies Program.

**THEA 3509.X/Y.06: The Modern Theatre 9: Postcolonial Theatre.**

This course will focus on the development of postcolonial theatre from the late twentieth century to the present day. Students will learn how to create performances that reflect and comment on current economic and social issues. This course is part of the Costume Studies Program.

**THEA 3510.X/Y.06: The Modern Theatre 10: Digital Theatre.**

This course will focus on the development of digital theatre from the late twentieth century to the present day. Students will learn how to create performances that utilize new technologies to explore and comment on current social and political issues. This course is part of the Costume Studies Program.

**THEA 3511.X/Y.06: The Modern Theatre 11: Ethnomusicology.**

This course will focus on the development of ethnomusicology from the late twentieth century to the present day. Students will learn how to create performances that reflect and comment on current cultural and political issues. This course is part of the Costume Studies Program.

**THEA 3512.X/Y.06: The Modern Theatre 12: Performance Art.**

This course will focus on the development of performance art from the late twentieth century to the present day. Students will learn how to create performances that reflect and comment on current social and political issues. This course is part of the Costume Studies Program.

**THEA 3513.X/Y.06: The Modern Theatre 13: Dance and Movement.**

This course will focus on the development of dance and movement from the late twentieth century to the present day. Students will learn how to create performances that reflect and comment on current cultural and political issues. This course is part of the Costume Studies Program.

**THEA 3514.X/Y.06: The Modern Theatre 14: Theatre of Memory.**

This course will focus on the development of theatre of memory from the late twentieth century to the present day. Students will learn how to create performances that reflect and comment on current cultural and political issues. This course is part of the Costume Studies Program.

**THEA 3515.X/Y.06: The Modern Theatre 15: Theatre and Film.**

This course will focus on the development of theatre and film from the late twentieth century to the present day. Students will learn how to create performances that reflect and comment on current cultural and political issues. This course is part of the Costume Studies Program.

**THEA 3516.X/Y.06: The Modern Theatre 16: Theatre and Technology.**

This course will focus on the development of theatre and technology from the late twentieth century to the present day. Students will learn how to create performances that reflect and comment on current cultural and political issues. This course is part of the Costume Studies Program.
THEA 3911.03: Gender in Theatre: A Cross-Cultural Survey.

This seminar course examines the role gender has played in the shaping of world theatre. Alongside the roles the theatre has played in the shaping of various cultural conceptions of gender. By exploring plays and performances from Europe, North America, China, Japan, India and other traditions, we will explore the ways in which various forms of representation reflect the cultures’ gendering of masculinity and femininity. In the process, we will deconstruct the historical and cultural variability of the notion of “gender” itself.

The main objective of the seminar will be to ask how gender determines performers’ choices in various cultures, and how gender itself can actually be shaped by performance.

FORMAT: Lecture/semiar. 3 hours
CROSS-LISTING: GWST 3912.02

THEA 3912.03: Gender Theory and Contemporary Performance.

This seminar course offers students an opportunity to examine some of the most provocative and challenging gender theories of recent years to relate to contemporary theatre, film, and performance art. Students will read considerations of the relationship between gender, performance, and identity by such authors as Jacques Lacan, Michel Foucault, Helene Cixous, Luce Irigaray, Julia Kristeva, Judith Butler, Peggy Phelan, and Camille Paglia, among others. Alongside these works, we will examine contemporary performances from the popular to the oppositional. Through this intertextual exploration of theory and performance, we will aim to expand our understanding of the ways in which gender roles are created, maintained, questioned, and changed in contemporary cultures.

FORMAT: Lecture/semiara. 3 hours plus bi-weekly screenings
CROSS-LISTING: GWST 3912.03

THEA 3913.03: English Drama 1660-1800.

A survey of plays produced during the Restoration and eighteenth century. Concentrating on the London scene from the first appearance of actresses on the stage to the burning of the Haymarket theatre in 1789, this course introduces students to the period’s various dramatic forms, the literary influences and contexts, and the many women and men who penned for the stage.

FORMAT: Lecture/discussion
PREREQUISITE: ENGL 1002X/06 or any two of ENGL 1011.00, 1023.00, 1043.00, or THEA 1002X/06, or the King’s Foundation Year Program.
CROSS-LISTING: ENGL 1023.01
EXCLUSION: ENGL 3252.06

THEA 3914.03: Topics in Italian Drama and Spectacle.

This course focuses on Italian drama and performance. The topics will vary from year to year and may include plays and texts such as: Italian Renaissance theatre, the Commedia dell’arte, Pirandello’s productions and contemporary Italian spectacle. The course will examine the selected topic while placing Italian theatre into a historical context.

FORMAT: Lecture
CROSS-LISTING: ITAL 3700.00

THEA 4390.XX: Special Topics in Film Studies.

This is an advanced seminar in film studies which examines one topic in-depth from formal, political, and historical perspectives. Topics may include but are not limited to: internal film, political cinema, montage, screen acting, film adaptations, the work of a particular director, or a film movement. The topic is assigned by the Department at the end of the preceding academic year and is then posted at the Departmental level in the Faculty’s timetable.

FORMAT: Seminar
PREREQUISITE: THEA 2351.03 and one other film course (1000-level or above recommended).

THEA 4391.03: Special Topics in Popular Cinema.

This advanced seminar addresses an issue in popular cinema. Topics may include but are not limited to: critical perspectives on a particular set of films; the relations between ‘independent’ cinemas and ‘mainstream’ cinemas; the social and aesthetic impact of new technologies in popular cinema. The topic is assigned by the Department at the end of the preceding academic year and is then posted at the Departmental level in the Faculty’s timetable.

FORMAT: Seminar
PREREQUISITE: THEA 2351.03 (or THEA 2360.03 or THEA 2320.06 are recommended).

THEA 4406X.Y.06: The Aesthetics of Historical Dress.

This seminar course examines the aesthetics of historical dress, tracing the evolution of changing silhouettes and historical pattern design throughout the eighteenth and nineteenth centuries. Emphasis is given to the development of dress in the eighteenth and nineteenth centuries. Students will learn the history and culture of the dress of this period and the social and historical influences that affected the development of clothing. The seminars will also include research and academic skills, with an emphasis on research techniques. Students will be provided with research skills. In the process, we will analyze the role of costume in relation to the development of dress and fashion during this period. The course will also include the study of costume design and the role of costume in the theatre. The seminar will aim to expand our understanding of the ways in which costume design is created, maintained, questioned, and changed in contemporary cultures.

FORMAT: Lecture/demonstration/lab 4.5 hours
CROSS-LISTING: ENGL 4500.03, CANA 4500.03
PREREQUISITE: Permission of the instructor
RESTRICTION: Costume Studies degree or diploma students only.

THEA 4450.03: Costume Technology.

This course extends the expertise in costume creation developed in THEA 1450X/06 or THEA 2451.03 and THEA 2452.03 to current technologies of fine art as students prepare their costume techniques. This course is part of the Costume Studies Program.

FORMAT: Lecture/discussion/lab 4.5 hours
PREREQUISITE: For BA in Theatre (Costume Studies) students: THEA 1002X/06, 1450X/06, 2451.03, 2452.03, 3401X/06, 3404.03, 3453.05
RESTRICTION: Costume Studies degree or diploma students only.

THEA 4452.03: The Sculpture of Dress.

Based on a historical framework and an interest in creativity, this course examines sculptural forms in a human context to facilitate modern and historical costume design. The student will work directly on the human body to make a garment to provide a foundation model for the study of mirrorable costume. This course is part of the Costume Studies Program.

FORMAT: Lecture/demonstration/lab 4.5 hours
PREREQUISITE: For BA in Theatre (Costume Studies) students: THEA 1002X/06, 1450X/06, 2451.03, 2452.03, 3401X/06, 3404.03, 3453.05
RESTRICTION: Costume Studies degree or diploma students only.

THEA 4500.03: Canadian Theatre to 1968: Performing the Nation.

Early Canadian theatre offers a fascinating example of a colonized nation’s struggle to find its own dramatic voice in the face of powerful outside influences. This seminar course will examine the development of theatre in Canada from its roots in the frontier and performance, to its encounters with British and European models and its eventual search for an independent identity via the Little Theatre Movement, the Workers’ Theatre Movement and the Dominion Drama Festival. The course will close with a consideration of the influential Massey Commission and the birth of the Stratford Festival. Canada’s ‘first world class’ theatre. Over the course of the term, special attention will be paid to the development of diverse national theatre in French and English Canada by representative playwrights who will be studied alongside primary sources in Canadian theatre history to give students an integrated perspective on the complex artistic and political debates that helped to determine the character of performance in Canada.

FORMAT: Seminar/discussion
PREREQUISITE: Permission of the instructor
CROSS-LISTING: ENGL 4500.03, CANA 4500.03

THEA 4501.03: Canadian Theatre Since 1968: Interrogating Identities.

This seminar course examines the ongoing emergence of uniquely Canadian forms of theatre in the years since the Massey Commission asserted the need for Canada’s native talent. Topics to be considered will include: the controversial role of government subsidy and policy-making in Canadian culture; the differing models offered by the Stratford and Shaw Festivals, by the major regional theatres, and by ‘alternative’ and independent companies; the contrast...
between First Nations, English- and French-Canadian traditions, and the rise of the current "fringe" phenomenon. Drama by representative playwrights will be considered alongside post-colonial theory and primary sources in Canadian theatre history to help students consider what a genuinely "Canadian" theatre might look like. Above all, the course offers an opportunity to consider the complex relationship between theatre and national identity who are "we," and how might our theatre express or even shape "us?"

FORM: Seminar-discussion

PREREQUISITE: Permission of the instructor

CROSS-LISTING: ENGL 4601.05, CANA 4601.05

THEA 4700X/Y.06: Special Topics I.

In this full year seminar course, students focus on a particular topic in dramatic literature, film studies, theatre history, dramatic theory, or a related interdisciplinary subject in order to investigate it in great detail. The topic is assigned by the Department in the end of the preceding year and is then posted by the Department and in the University's timetable.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORM: Seminar 3 hours

THEA 4735.06: Advanced Seminar in Baroque Culture.

This course offers its students a survey of key aspects of seventeenth and eighteenth-century European history and society along with a first-hand view of some of the most important aspects of Baroque style and material culture. It takes place in the town of Český Krumlov in the Czech Republic. The course introduces students to the socio-political conditions that led to the birth of Baroque civilization before entering into an exploration of the court life of seventeenth and eighteenth-century Europe. It then examines the cultural and artistic forms most characteristic of this period, with particular emphasis on literary history and on the role of the "theatrical" in the Baroque arts. As the course proceeds, students will have an opportunity to consider the connections between course material and the evidence of Baroque culture to be found in the Castle Theatre's scenographic machinery, its stock of original scenery and props, and its collection of historical costumes, as well as to witness an experimental Baroque open performance.

Finally, the course will include visits to Prague and other sites of interest to add to students' understanding of the Baroque and its legacy to subsequent periods.

FORM: Lecture/lab

PREREQUISITE: Permission of the School of Performing Arts and History Department.

RESTRICTION: 3rd and 4th year students only.

THEA 4800X/Y.06/4840X/Y.06: The Interpretation and Performance Year.

In the final year of the Acting Program, students' studies are geared toward performance and entering the world of professional acting. The company of fourth year Acting Program students will be cast in three DalTheatre season shows.

In the final year of the Acting Program, students' studies are geared toward performance and entering the world of professional acting. The company of fourth year Acting Program students will be cast in three DalTheatre season shows.

The course will include visits to Prague and other sites of interest to add to students' understanding of the Baroque and its legacy to subsequent periods.

FORM: Seminar 3 hours

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORM: Seminar 3 hours

THEA 4735.06: Advanced Seminar in Baroque Culture.

This course offers its students a survey of key aspects of seventeenth and eighteenth-century European history and society along with a first-hand view of some of the most important aspects of Baroque style and material culture. It takes place in the town of Český Krumlov in the Czech Republic. The course introduces students to the socio-political conditions that led to the birth of Baroque civilization before entering into an exploration of the court life of seventeenth and eighteenth-century Europe. It then examines the cultural and artistic forms most characteristic of this period, with particular emphasis on literary history and on the role of the "theatrical" in the Baroque arts. As the course proceeds, students will have an opportunity to consider the connections between course material and the evidence of Baroque culture to be found in the Castle Theatre's scenographic machinery, its stock of original scenery and props, and its collection of historical costumes, as well as to witness an experimental Baroque open performance.

Finally, the course will include visits to Prague and other sites of interest to add to students' understanding of the Baroque and its legacy to subsequent periods.

FORM: Lecture/lab

PREREQUISITE: Permission of the School of Performing Arts and History Department.

RESTRICTION: 3rd and 4th year students only.

THEA 4800X/Y.06/4840X/Y.06: The Interpretation and Performance Year.

In the final year of the Acting Program, students' studies are geared toward performance and entering the world of professional acting. The company of fourth year Acting Program students will be cast in three DalTheatre season shows.

In the final year of the Acting Program, students' studies are geared toward performance and entering the world of professional acting. The company of fourth year Acting Program students will be cast in three DalTheatre season shows.

The course will include visits to Prague and other sites of interest to add to students' understanding of the Baroque and its legacy to subsequent periods.

FORM: Seminar 3 hours

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORM: Seminar 3 hours

THEA 4735.06: Advanced Seminar in Baroque Culture.

This course offers its students a survey of key aspects of seventeenth and eighteenth-century European history and society along with a first-hand view of some of the most important aspects of Baroque style and material culture. It takes place in the town of Český Krumlov in the Czech Republic. The course introduces students to the socio-political conditions that led to the birth of Baroque civilization before entering into an exploration of the court life of seventeenth and eighteenth-century Europe. It then examines the cultural and artistic forms most characteristic of this period, with particular emphasis on literary history and on the role of the "theatrical" in the Baroque arts. As the course proceeds, students will have an opportunity to consider the connections between course material and the evidence of Baroque culture to be found in the Castle Theatre's scenographic machinery, its stock of original scenery and props, and its collection of historical costumes, as well as to witness an experimental Baroque open performance.

Finally, the course will include visits to Prague and other sites of interest to add to students' understanding of the Baroque and its legacy to subsequent periods.

FORM: Lecture/lab

PREREQUISITE: Permission of the School of Performing Arts and History Department.

RESTRICTION: 3rd and 4th year students only.

THEA 4800X/Y.06/4840X/Y.06: The Interpretation and Performance Year.

In the final year of the Acting Program, students' studies are geared toward performance and entering the world of professional acting. The company of fourth year Acting Program students will be cast in three DalTheatre season shows.

In the final year of the Acting Program, students' studies are geared toward performance and entering the world of professional acting. The company of fourth year Acting Program students will be cast in three DalTheatre season shows.

The course will include visits to Prague and other sites of interest to add to students' understanding of the Baroque and its legacy to subsequent periods.

FORM: Seminar 3 hours

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORM: Seminar 3 hours

THEA 4735.06: Advanced Seminar in Baroque Culture.

This course offers its students a survey of key aspects of seventeenth and eighteenth-century European history and society along with a first-hand view of some of the most important aspects of Baroque style and material culture. It takes place in the town of Český Krumlov in the Czech Republic. The course introduces students to the socio-political conditions that led to the birth of Baroque civilization before entering into an exploration of the court life of seventeenth and eighteenth-century Europe. It then examines the cultural and artistic forms most characteristic of this period, with particular emphasis on literary history and on the role of the "theatrical" in the Baroque arts. As the course proceeds, students will have an opportunity to consider the connections between course material and the evidence of Baroque culture to be found in the Castle Theatre's scenographic machinery, its stock of original scenery and props, and its collection of historical costumes, as well as to witness an experimental Baroque open performance.

Finally, the course will include visits to Prague and other sites of interest to add to students' understanding of the Baroque and its legacy to subsequent periods.

FORM: Lecture/lab

PREREQUISITE: Permission of the School of Performing Arts and History Department.

RESTRICTION: 3rd and 4th year students only.

THEA 4800X/Y.06/4840X/Y.06: The Interpretation and Performance Year.

In the final year of the Acting Program, students' studies are geared toward performance and entering the world of professional acting. The company of fourth year Acting Program students will be cast in three DalTheatre season shows.

In the final year of the Acting Program, students' studies are geared toward performance and entering the world of professional acting. The company of fourth year Acting Program students will be cast in three DalTheatre season shows.

The course will include visits to Prague and other sites of interest to add to students' understanding of the Baroque and its legacy to subsequent periods.

FORM: Seminar 3 hours

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORM: Seminar 3 hours

THEA 4735.06: Advanced Seminar in Baroque Culture.

This course offers its students a survey of key aspects of seventeenth and eighteenth-century European history and society along with a first-hand view of some of the most important aspects of Baroque style and material culture. It takes place in the town of Český Krumlov in the Czech Republic. The course introduces students to the socio-political conditions that led to the birth of Baroque civilization before entering into an exploration of the court life of seventeenth and eighteenth-century Europe. It then examines the cultural and artistic forms most characteristic of this period, with particular emphasis on literary history and on the role of the "theatrical" in the Baroque arts. As the course proceeds, students will have an opportunity to consider the connections between course material and the evidence of Baroque culture to be found in the Castle Theatre's scenographic machinery, its stock of original scenery and props, and its collection of historical costumes, as well as to witness an experimental Baroque open performance.

Finally, the course will include visits to Prague and other sites of interest to add to students' understanding of the Baroque and its legacy to subsequent periods.

FORM: Lecture/lab

PREREQUISITE: Permission of the School of Performing Arts and History Department.

RESTRICTION: 3rd and 4th year students only.

THEA 4800X/Y.06/4840X/Y.06: The Interpretation and Performance Year.

In the final year of the Acting Program, students' studies are geared toward performance and entering the world of professional acting. The company of fourth year Acting Program students will be cast in three DalTheatre season shows.

In the final year of the Acting Program, students' studies are geared toward performance and entering the world of professional acting. The company of fourth year Acting Program students will be cast in three DalTheatre season shows.

The course will include visits to Prague and other sites of interest to add to students' understanding of the Baroque and its legacy to subsequent periods.

FORM: Seminar 3 hours

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
speaking nations is brought to life in courses organized around a theme, a genre, or an historical period.

The Department of French urges students to practice the language as much as possible. The French Club organizes activities including films, French meals, parties and plays in which all students may participate. Participation in immersion programs and individual student travel and study are encouraged. Please consult the Department for information and see below: Studies in a Francophone Environment.

A BA degree in French with Honours, or with Honours in French and another allied subject, may lead the student to a career in education, translation or interpreting, or may provide the background for careers in many fields, including radio, television, law, social work, public relations, business, diplomacy, journalism and library science. Students considering French as a minor in a BA degree are invited to discuss the matter at any time (the earlier the better) with a departmental advisor. The focus is on the particular needs and aspirations of the individual. An Honours degree is normally required for access to graduate studies. MA and PhD degrees may be pursued in the Department (see the Calendar for Faculty of Graduate Studies).

The French Department offers a number of academic awards to students, including the Ruth Murray Scholarship, the French Department Scholarship, the Marcelle Condé Sandhu Memorial Prize, the Sahib Maitly French Scholarship, the Prof. and Mrs. Robert Llewellyn Merrick Prize, the Prix de l’Alliance Française, and Embassy and Consular book prizes. Graduating Honours and Majors students may apply to the French Embassy for an eight month internship to tutor in France. Students may, with the approval of the Department of French, take up to one year of study at a University in a francophone environment and receive credit at Dalhousie. Honours may be available for students selected to participate in the Dalhousie Studies in a Francophone Environment Program.

The language requirement exemption test in French is given in the April examination period. Students should register at the Registrar’s Office before mid-January by completing an Application for Exemption from the Language Requirement. A copy of the form must be provided to the French Department. Please note that passing the language requirement exemption test does not give a course credit.

II. Degree Programs

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar.

Requirements for the four degree programs are set out in the following sections. Effective from other departments, when chosen with care, can enrich and enhance the major courses. Departmental Advisors can provide information on recommended electives. All Majors and Honours Students must consult with the Undergraduate Advisor.

Students interested in a degree in European Studies should consult the European Studies section of this calendar.

Students interested in an emphasis or a combined degree in Canadian Studies should consult the Canadian Studies section of this calendar.

A. BA with Honours in French

This program offers systematic, comprehensive and individualized study of French language, literature, linguistics and other program elements both inside and outside the classroom. It is, therefore, an option which should be considered seriously by any student who, with career or personal objectives in mind, wishes to obtain a strong background in French and by those who plan to teach or earn a graduate degree in French.

Honours students are strongly encouraged to enrich their learning experience by spending at least one term in a French-speaking area. Please consult the Department for information on our Diaspora program.

Potential Honours applicants should consult the Department’s Undergraduate Advisor, preferably during their second year of study, regarding the application procedure and relevant deadlines.

1. Concentrated Honours

Departmental Requirements

2000 level
- FREN 2043.06
- FREN 2202.03

3000 level
- FREN 3021.03 or 3022.03
- FREN 3045.06
- one full credit in literature and/or culture

4000 level
- FREN 4017.03 and 4046.03
- two 4000 level full credits
- At least one other full credit: 2000 to 4000 level; for a total of nine French credits
- FREN 4933.00 (Honours Seminar)

Second year (i.e., 2000 level) courses taken during the student’s first year at Dalhousie may count towards major or honours, with the approval of the department.

An additional grade is required: either an Honours Essay or an Oral Presentation (see document entitled “French Honours Qualifying Examination” available from the Honours Advisor or the departmental secretary).

2. Combined Honours

From 11 - 14 credits in French and another subject; not fewer than five nor more than eight may be chosen in French. Minimum requirements for the Combined Honours program are as follows: 2043.06, 2202.03, 3045.06, 4017.03 and 4046.03 plus a minimum of one full credit in language, literature, culture or linguistics at the 3000 or 4000 level. When French is the primary subject, FREN 4933 (Honours Seminar) and an additional credit are required: either an Honours Essay or an Oral Presentation (see document entitled “French Honours Qualifying Examination” available from the Undergraduate Advisor or the departmental secretary).

3. Honours Conversion

The Honours Conversion is an option for continued study open to anyone who has previously completed a BA (15 credit) program at Dalhousie. Normally, it consists of five full credits of course work plus one additional credit: either an honours essay or an oral interview based on course work and or a specific topic. Requirements for the Honours Conversion are similar to those for the Concentrated Honours Program, but will vary according to individual circumstances.

20 credit degrees may also be converted to Honours degree; please consult the departmental Undergraduate Advisor.

B. BA (20 credit) Major in French

Students must take a minimum of seven and a maximum of nine credits in French. Please consult the departmental Undergraduate Advisor.

Departmental requirements

2000 level
- FREN 2043.06
- FREN 2202.03

3000 level
- FREN 3045.06
- two other 3000 level full credits in French

4000 level
- FREN 4017.03 and 4046.03
- one other 4000 level full credit in French

PLEASE NOTE: Students with proper standing wishing to change to an Honours Program may do so, in which case they should also take FREN 2043.06 and FREN 3021.03 or FREN 3022.03 (required for Honours), and consult the Chair or the Undergraduate Advisor.
Classroom work involves a grammar review, study and discussion of a wide variety of readings, reading comprehension, as well as correction of prepared translations and sight translations (from French to English-only). FREN 1004 is given in English and is not, by itself, suitable for students who plan to major in French. It may, however, be taken by those with no prior training in French or as an additional first-year option for those taking FREN 1005X/Y or FREN 1004X/Y. This course also satisfies the Bachelor of Arts Language Requirement.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

PREREQUISITE: Online Placement Test

FREN 1005X/Y.06: Français fondamental/Basic French

For students with little or no previous background in French, for example students with grade 8-11 core French (online Placement Test required: www.dal.ca/frenchtest). This course presents the basic components of French grammar with an emphasis on simple sentence types, and develops all four language skills: listening, reading, writing and speaking. Selected readings will lead to the application of structures being studied and to vocabulary enrichment. Weekly tutorials are an integral part of this course. A final grade of B or above is required in this course to progress to the second-year French courses.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture

FREN 1045X/Y.06: Français intermédiaire/Intermediate French

For students with some background in French, for example grade 11-12 core French (online Placement Test required: www.dal.ca/frenchtest), or follows FREN 1005 (for students who have achieved a final grade of B or above) or FREN 1004. Focusing on the study of more advanced grammatical structures with an introduction to grammatical analysis, this course also aims to further develop the four language skills: listening, reading, writing and speaking. Selected readings will lead to the application of structures being studied and to vocabulary enrichment. This course satisfies the Bachelor of Arts Language Requirement and is normally followed by FREN 2045 or FREN 2021 and FREN 2022.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture

PREREQUISITE: Online Placement Test required: www.dal.ca/frenchtest

FREN 1050X/Y.06: Français pour anciens étudiants des programmes d’immersion/French for Former Immersion Students.

For students who have completed French Immersion to Grade 12 (online Placement Test required: www.dal.ca/frenchtest). Focusing on the study of more advanced grammatical structures including grammatical analysis, this course also aims to further develop the four language skills: listening, reading, writing and speaking. Selected readings will lead to the application of the structures being studied and to vocabulary enrichment. This course will enable immersion graduates to build on their strengths while working to eliminate ingrained errors. A final grade of B or above is required in this course to progress to all second-year French courses. This course satisfies the Bachelor of Arts Language Requirement and is normally followed by FREN 2045 or FREN 2021 and 2022.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture

PREREQUISITE: Online Placement Test required: www.dal.ca/frenchtest

FREN 1070.03: Introduction to Linguistics.

Taught in English, the course focuses on core theories and methods of linguistics and its principal subfields: phonology, morphology, syntax, semantics, pragmatics and sociolinguistics.

FORMAT: Lecture

PREREQUISITE: None
FREN 1005.03: Introduction à la linguistique/Introduction to Linguistics.

Linguistics is the science of language. This course is designed to serve as an introduction to basic concepts in linguistics. The various subfields of linguistics will be introduced with a focus on the core areas of linguistics: phonetics, phonology, morphology, syntax, and semantics. Students will learn about the structure of language at different levels of organization: phonemes, syllables, words, phrases, and sentence structures. FORMAT: Lecture.

PREREQUISITE: FREN 1045X/Y.06 or 1050X/Y.06, or 2000-level Placement Test result, or instructor's permission.

FREN 2020.03: Introduction à la linguistique/Introduction to Linguistics.

Linguistics is the science of language. This course is designed to serve as an introduction to basic concepts in linguistics. The various subfields of linguistics will be introduced with a focus on the core areas of linguistics: phonetics, phonology, morphology, syntax, and semantics. Students will learn about the structure of language at different levels of organization: phonemes, syllables, words, phrases, and sentence structures. FORMAT: Lecture.

PREREQUISITE: FREN 1045X/Y.06 or 1050X/Y.06, or 2000-level Placement Test result, or instructor's permission.

EXCLUSION: FREN 2020/30.

FREN 2021.03: FREN 2022.03: Langue et culture/Language and Culture.

Normally follows FREN 1045X/Y.06 or 1050X/Y.06, and is taken in the second year of study. This course provides the opportunity to practise and improve language skills (vocabulary and grammar) already acquired. Each year sections offer topics from the options listed under FREN 2021.03. Each section focuses upon a broad cultural topic via which language skills are developed. No prior knowledge of the topic is supposed. Various readings lead to discussions and oral presentations. Descriptions for sections offered in a specific year may be obtained in April from the Department. All courses and assignments are entirely in French. A maximum of two sections may be taken under the course designation of FREN 2021.03 and 2022.03. For possible topics, see FREN 2021.03. Approved in part with Canadian Studies (topics 3 and IDS (topic 6).

FREN 2022.03: Langue et culture/Language and Culture.

Normally follows FREN 1045X/Y.06 or 1050X/Y.06. This course provides the opportunity to practise and improve language skills (vocabulary and grammar) already acquired. Each year sections offer topics from the options listed under FREN 2022.03. Each section focuses upon a broad cultural topic via which language skills are developed. No prior knowledge of the topic is supposed. Various readings lead to discussions and oral presentations. Descriptions for sections offered in a specific year may be obtained in April from the Department. All courses and assignments are entirely in French. A maximum of two sections may be taken under the course designation of FREN 2021.03 and 2022.03. For possible topics, see FREN 2021.03. Approved in part with Canadian Studies (topics 3 and IDS (topic 6).

FREN 2023.03: Phonologie/Phonology.

This course follows FREN 1005 and is designed for students who do not wish to major in French but who wish to maintain, and improve their general knowledge of French language and Francophone culture. Along with further training in basic grammatical structures, the course focuses on the practical and accurate use of French to further develop communication skills. Based on authentic audiovisual and multimedia material (films, commercials, documentaries, etc.), activities will aim at vocabulary enrichment, oral comprehension and expression development and will focus mainly on contemporary and daily life topics in a Canadian context. Successful completion of this course (final grade of B or above) leads to second year courses such as FREN 2002 or FREN 2021/22 for Non-Majors, or to FREN 1045 for students who subsequently decide to major in French. This course does not count towards a Major or Certificate of Proficiency in French.

FORMAT: Lecture/discussion.

PREREQUISITE: FREN 1005.03 (final grade of B or above) or instructor's permission.

FREN 2024/5/6: Grammaire intensive/Intensive Grammar.

This course develops a more advanced knowledge of French. A detailed study of grammar through an in-depth analysis of all components of simple, complex and marked sentences leading to paragraph and text analysis. Emphasis is placed on the correspondence between grammatical content and meaning. Various grammar, writing and translation exercises will aim at developing the ability to communicate in clear, accurate written French. This class normally follows FREN 1045/1050, and is normally followed by FREN 3045. NOTE: Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture/material.

PREREQUISITE: FREN 1045X/Y.06 (final grade of B or above), FREN 1050X/ Y.06 (final grade of B or above), or 2000-level Placement Test result.

EXCLUSION: FREN 1005X/6.

FREN 2070.03: Le français des affaires/ French for Business I.

This course aims to introduce the basic elements of business and administrative French. While developing oral, reading and writing skills through the use of authentic economic and business documents, students will master vocabulary specific to the workplace. This course is normally followed by FREN 3070 (French for Business II).

FORMAT: Lecture/discussion.

PREREQUISITE: FREN 1045/60 or 2000-level placement test or instructor's permission.

French 215
EXCLUSION: FREN 3005X/Y
RESTRICTION: Must be taken before FREN 3070

FREN 2201.03: FREN 2202.03: Introduction à la littérature/Introduction to French Literature.
A survey of literature in French from the Middle Ages to the 20th Century, presenting selected works of prose, poetry and theatre from France, and possibly also from Québec, Acadia and other Francophone areas. Introduction to general notions of literary history and to the basic techniques involved in reading literary texts. Attention is paid to the development of both oral and written expression of ideas. FREN 2201.03 and FREN 2202.03 may be taken consecutively. Classes include group discussions and lectures.
FORMAT: Lecture
PREREQUISITE: FREN 1045X/Y.06 or FREN 1050X/Y.06, or 2000-level Placement Test result.

FREN 2275.03: French Literature in Translation: The Novel/Littérature française le cas du roman en traduction anglaise.
Given in English, this course will study key fictional works representative of different historical periods and the changing form of the novel. Approximately seven to eight works from a selection of the following authors will be studied: Chéruit de Troyes, Marguerite de Navarre, Madame de Lafuye, Rousseau, Balzac, Flaubert, Stendhal, Proust, Colette, De Beauvoir, Duras. The selection of authors and works may vary from year to year, but the "survey" nature of the course will be maintained. The language of the course will be English. This course does not satisfy the French degree program requirements. French Majors and Honours students may take this course as an elective.
FORMAT: Lecture
NOTE: Film Studies minor specialists should consult program requirements. This course does not satisfy the French degree program requirements. French Majors and Honours students may take this course as an elective.

FREN 2666.03: The End of the World, from ‘Apocalypse’ to ‘Zombies’.
Given in English, this course is an introduction to the ‘End of the World’ (the end of Mankind / of the Earth / of the whole Universe) as a topic or as an archetype in a narrative ranging from religious and prophetic writings to modern ‘apocalyptic and post-apocalyptic fiction’. The survey will be both chronological (from biblical writings to 21st c. cinema) and thematic (distinction and renewals, chronologies and predictions, war and famine, death and the undead).
FORMAT: Lecture

FREN 2800.03: Cinema: The French Phenomenon I.
From the Lumière Brothers to the New Wave.
Given in English, this course is an introduction to the ‘End of the World’ (the end of Mankind / of the Earth / of the whole Universe) as a topic or as an archetype in a narrative ranging from religious and prophetic writings to modern ‘apocalyptic and post-apocalyptic fiction’. The survey will be both chronological (from biblical writings to 21st c. cinema) and thematic (distinction and renewals, chronologies and predictions, war and famine, death and the undead).
FORMAT: Lecture

FREN 2801.03: Cinema: The French Phenomenon II.
From the New Wave to the New Millennium.
Given in English, this course is an introduction to the ‘End of the World’ (the end of Mankind / of the Earth / of the whole Universe) as a topic or as an archetype in a narrative ranging from religious and prophetic writings to modern ‘apocalyptic and post-apocalyptic fiction’. The survey will be both chronological (from biblical writings to 21st c. cinema) and thematic (distinction and renewals, chronologies and predictions, war and famine, death and the undead).
FORMAT: Lecture
FREN 3200.03: Contes et légendes du monde francophone/Tales and Legends of the Francophone World.

Students in this course will become acquainted with a variety of French folk tales, fairy tales, legends, and the "literary" short stories. Distinguishing between these sub-genres will be part of the focus of the course. The stories themselves will be drawn from a variety of periods and areas of the French-speaking world. They may include, among other sources of stories, fairy tales published by Perrault and by women writers of the 17th century, folk tales of the oral tradition collected in various parts of the francophone world, short stories by such modern writers as Balzac, Sand, Flaubert, Musset, Toisy, to mention only a few possibilities.

In addition to exams and traditional assignments requiring analysis, students will explore the oral tradition by learning to tell stories orally. Students will also write original stories and work on editing them and publishing them within the course.

FORMAT: Lecture and seminar
PREREQUISITE: Recommended: FREN 2201.03/2202.03
CROSS-LISTING: GWST 3250.03

FREN 3250.03: Écrivaines françaises/French Women writers.

This course will explore the condition of women as expressed in a selection of texts by French women writers. The choice of writers may vary from year to year, and the course may be organized around a theme or a particular time period. Students taking this course as a Gender and Women's Studies course may write their essays and exams in English.

FORMAT: Lecture/discussion
PREREQUISITE: FREN 2201.03/2202.03
CROSS-LISTING: GWST 3220.03

FREN 3325.03: L'épistolaire/Letter Writing in French Literature.

Letter writing as a literary genre: correspondences and epistolary novels. The theoretical part deals with the birth of the epistolary novel, the various letter writing styles, and types of letters. It explores the borders between letter writing and diary as well as the interaction between public and private spheres. Texts studied are epistolary novels and correspondences from the 18th century (beginning of the separation between private and public spheres), as well as extracts from 17th and 18th century correspondences.

FORMAT: Lecture and seminar
PREREQUISITE: FREN 2201.03/2202.03

FREN 3500.03: La littérature du seizième siècle/16th Century French Literature.

This course explores the evocative, flourishing and decline of the Renaissance period in literature and language through the works of Montesquieu, Voltaire, Rousseau, and their others from the baroque. The 18th century's concern with the French language provides a solid introduction to the study of the development of modern French.

FORMAT: Lecture/discussion
PREREQUISITE: FREN 2201.03/2202.03
CROSS-LISTING: GWST 3220.03

FREN 3603.03: Aspects de la francophonie/Aspects of the Francophone World.

Taught in French, this course provides an introduction to the study of the francophone world, its cultural, linguistic, and political aspects. From year to year the course may emphasize different regions: Western Countries, Sub-Saharan Africa, Pacific Islands, North America, Latin America. FORMAT: Lecture

CROSS-LISTING: INTD 3125.03

FREN 3700.03: Pratiques de soutien à l'écriture/Supporting Writing Activities.

This course introduces the critical reading of a selection of literary texts (various genres and periods) with an emphasis on French literature. The close analysis of short texts will lead to discussions of the broader nature of recurring tropes and myths as well as central themes. Strongly recommended for French majors and Honours students. Approved with Canadian Studies.

PREREQUISITE: FREN 2045X/Y.6
CROSS-LISTING: CASA 2201.03
EXCLUSION: FREN 2201.03

FREN 3850.03: Approches du texte littéraire/Approaches to Literary Texts.

An introduction to the critical reading of a selection of literary texts (various genres and periods) with an emphasis on Québec literature. The close analysis of short texts will lead to discussions of the broader nature of recurring tropes and myths as well as central themes. Strongly recommended for French majors and Honours students. Approved with Canadian Studies.

PREREQUISITE: FREN 2045X/Y.6
CROSS-LISTING: CASA 2201.03
EXCLUSION: FREN 2201.03

FREN 3225.03: La littérature du dix-neuvième siècle/19th Century French Literature.

This course offers an introduction to nineteenth century French literature with a primary focus on representative works by three major dramatists: Corneille, Molière and Racine. It explores their vision of humanity and the world and assesses their contribution to French literature and the history of ideas.

FORMAT: Lecture/discussion
PREREQUISITE: FREN 2201.03/2202.03
FREN 3600.03: La littérature du dix-huitième siècle/18th Century French Literature.
An introduction to the literature of the 18th century which includes works by such authors as Voltaire, Rousseau, Diderot and Manon. Each year the readings and class discussions will be centered on a different theme (for example: the hero, women, love, wealth and power).
FORMAT: Lecture/discussion
PREREQUISITE: FREN 2201.03/2202.03

FREN 3700.03: La littérature du dix-neuvième siècle/19th Century French Literature.
An introduction to the main literary movements of the 19th Century: Romanticism, Realism, Symbolism. Focus on representative authors and/or texts belonging to one or more of these trends.
FORMAT: Lecture/discussion
PREREQUISITE: FREN 2201.03/2202.03

FREN 3730.03: La bande dessinée francophone - The Franco-Belgian Comic Strip.
This course offers an analysis of the development of Franco-Belgian comics (bandes dessinées) from the post-war period to the present time, focusing on a number of major creators, magazines and publishers. Several theoretical approaches will be used including semiotics, socio-criticism and cultural studies.
FORMAT: Lecture/seminar
PREREQUISITE: FREN 2201.03/2202.03

FREN 3750.03: Littérature industrielle, roman populaire et roman de consommation/Popular Literature and the Rise of Mass Culture.
The second half of the 20th century witnesses the development and increasing popularization of the novel as the pre-eminent form of literary expression, concurrently with a dramatic increase and diversification of the reading public. This course will explore the evolution of the novel during this period, with a particular emphasis on the appearance of serialised novels in magazines and newspapers (le feuilleton) and on the development of "genre" fiction and the concept of "popular" literature. Books or excerpts from several representative works of the time (Alexandre Dumas père, Eugène Sue, Balzac, Frédéric Sassi, Paul Fervat, Jules Verne) will be analyzed and discussed, in the light of theoretical approaches to popular and mass culture, as well as to representative social and cultural contexts.
FORMAT: Lecture/seminar
PREREQUISITE: FREN 2201.03/2202.03

FREN 3800.03: Théâtre et poésie du vingtième siècle/French Theatre and Poetry of the 20th Century.
This course offers a study of modern poetry from Dada and Surrealism to the work of contemporary poets such as Yves Bonnefoy, Jacques Dupin and Michel Délogny; and of modern theatre from Ierly to Beckett, Ionesco and beyond.
FORMAT: Lecture/discussion
PREREQUISITE: FREN 2201.03/2202.03

FREN 3810.03: Prose et théorie littéraire du 20e siècle/ 20th Century Prose and Literary Theory.
Analysis of a broad selection of short prose by major novelists of the 20th century from Gaël to Pierre and Aragon, but with emphasis upon the more recent work of Beckett, Saramour, Simon, Duras, Louis-Girault and Colette. Parallel discussion will be centered upon the literary theory of critics such as Bachtrel, Poute, Furstendiek, Barthe and Derrida.
FORMAT: Lecture/discussion
PREREQUISITE: FREN 2201.03/2202.03

This course focuses on the evolution of African and Caribbean literature from its origins to the present day. It prepares students for upper level courses in African and Caribbean literature, for example FREN 4011 (Francophone Poetry).
PREREQUISITE: FREN 2201/2202 or permission of instructor

FREN 3900.03: FREN 3901.03: La littérature canadienne-française/French-Canadian Literature.
In-depth study of a few major works of French-Canadian literature with emphasis on the period from 1845 to the present day. Approved with Canadian Studies.
FORMAT: Lecture/discussion
PREREQUISITE: FREN 2201.03/2202.03
CROSS-LISTING: CANA 3900.03/3901.03

FREN 3910.03: Études acadiennes/Acadian Studies.
Critical investigation into the historical, socio-cultural, linguistic and literary significance of past and present Acadia. Approved with Canadian Studies.
FORMAT: Lecture/discussion
PREREQUISITE: FREN 2201.03/2202.03

FREN 3994.03: Independent Study.
This course is generally given in preparation for students studying abroad in the Winter term.

FREN 4001.03: Histoire du français - Moyen Âge/History of French - The Middle Ages.
Advanced research into selected topics in Old and Middle French - manuscript studies such as paleography, historical phonetics, morphology and syntax, and the cultural-literary context of linguistic development.
FORMAT: Seminar
PREREQUISITE: 3000-level French course

Advanced research into selected topics - the emergence of a national language, the problem of orthography, usage and the development of normative grammars, the evolution of vocabulary, episcopal phenomena (hiéronymiques, the Basque, Provençal, the Revolution, scientific French, etc.), the development of the literary and the scientific language, the relationship between language and society.
FORMAT: Seminar
PREREQUISITE: 3000-level French course

FREN 4011.03: Lexicologie/Lexicology.
How can French vocabulary be studied and structured? What is its formation (derivation, composition, metaphor, borrowing, abbreviation, etc.), its meaning, its development? Class reports, discussions and lexical assignments are important components of this course.
FORMAT: Seminar
PREREQUISITE: FREN 3020.06 or FREN 2020.03 and 3021.03 or 3022.03, or instructor's permission

FREN 4013.03: Pragmatique/Pragmatics.
FORMAT: Lecture
PREREQUISITE: FREN 3020.06 and 3021.03 or 3022.03, or instructor's permission

FREN 4014.03: Langue et société/ Language and Society.
FORMAT: Lecture
PREREQUISITE: FREN 3020.06 and 3021.03 or 3022.03, or instructor's permission

FREN 4016.06: Introduction to Applied Linguistics and Language Teaching.
Taught in English, this course provides students with a theoretical and practical introduction to issues in language teaching. It includes a survey of language teaching methods which focuses both on their theoretical underpinnings and their methodology. It will include some classic methodologies (Grammar Translation as well as some fascinating but lesser known methods (Audio-lingual method, Silent Way, Suggestopedia, Community Language Learning). Significant class time will be devoted to current trends and conflicting views (for example, various
definitions of “communicative” approach, the proficiency movement. Class time will be devoted not only to learning about these approaches, but to experiencing them via peer micro-teaching.

N.B. This course is open to senior students (or graduate students) in all language departments. French majors or honors students may not count this course towards the minimum number of credits required for their French degree, but may take it as a supplementary elective course.

NOTE: All students enrolled in the course must do a practicum of two hours per week. Normally, this will be done as volunteer tutoring for Dalhousie ESL.

FREN 4017.03: Traduction générale/General Translation.
This course normally follows FREN 3405. Students taking this course will be familiarized with essential notions of translation theory, and will be introduced to professional translation practice. Emphasis will be placed on the translation of relatively short texts in a wide variety of subjects and fields, from English into French and from French into English. Assessment will be carried out through weekly assignments, as well as in-class exams.

FORMAT: Lecture
PREREQUISITE: FREN 3405.06 or instructor's permission
EXCLUSION: FREN 4015.06

FREN 4018.03: Outils et ressources électroniques d'aide à la rédaction, la traduction et la révision en français/Electronic tools and resources for French writing, editing, and revising.
The aim of this course is to provide the student with a wide range of electronic tools and resources useful to text writing, translation and editing activities in French. The student will learn how to use these electronic tools and resources, and in particular, some of the techniques associated with them. Tools demonstrated will include grammar checkers, machine (aided) translators, concordancers and spell checkers. Resources presented will consist of on-line terminology banks, dictionaries, thesauri and grammars, etc.

FORMAT: Lecture/lab
PREREQUISITE: FREN 3405.Y.06 or equivalent or instructor's permission

FREN 4046.03: Composition avancée/Advanced Composition.
This course normally follows FREN 3405. Students in this course will hone their writing skills by learning principles of good writing and putting them into practice via writing, editing, reviewing of various kinds. They will learn the conventions that characterize good academic writing in French. They will also create some professional documents, including a French curriculum vitae and job application letter. Students may also do some less formal writing, including descriptions and narratives.

FORMAT: Lecture
PREREQUISITE: FREN 3405.06 or instructor's permission
EXCLUSION: FREN 4045.06

FREN 4300.03: Le roman courtois/Courtly Novels.
A close literary analysis of medieval French Arthurian romances. Texts in Old French/Modern French editions.

FORMAT: Seminar
PREREQUISITE: 3000-level French literature course

FREN 4301.03: La poésie courtoise/Courtly Poetry.
A stylistic and socio-cultural study of French courtly love poetry from the 9th to the 15th centuries. Early texts in modern French translations.

FORMAT: Seminar
PREREQUISITE: 3000-level French literature course

FREN 4401.03: La pensée philosophique, politique et morale de la renaissance/Renaissance Philosophical, Political and Moral Thought of the Renaissance.
An in-depth study of major currents of Renaissance thought: humanism, scientific awakening, the beginning of 'literature engagée,' and the emergence of the novel and of philosophy.

FORMAT: Seminar
PREREQUISITE: 3000-level French literature course

FREN 4500.03: L'aventure intellectuelle du grand siècle/The Intellectual Adventure of 17th-Century France.
This course examines, at an advanced level, a major writer, movement, genre or theme in 17th-century French literature. As the focus of the course may vary frequently, please consult the professor for detailed information on the topic and format.

FORMAT: Seminar
PREREQUISITE: 3000-level French literature course

FREN 4550.03: La femme de lettres au Grand Siècle/Literary Women of French Classicism.
In this course, we will explore aspects of the intellectual and social context particularly relevant to a study of literary women in 17th-century France (for example: social structures and norms, la procéziose, the salon, the libertinage of Stanislas, women's contributions as patrons of the arts), a representative selection of works, from several literary genres, written by 17th-century women (for example: novels by Mme de La Fare ouille and/or Mlle de Scudéry, Mme de Sévigné's letters, Mme d'Aulnoy's contes, Mme de Sade's novels), examples of literature written by men which contains the ambient misogyny of the period (for example: Molinier's L'Ecole des femmes and La Bréviaire de Carinates).

FORMAT: Lecture/discussion/group activities
PREREQUISITE: 3000-level French literature course or instructor's permission
CROSS-LISTING: GWST 4550.03

An in-depth study of the French Enlightenment which treats some of the larger works by major authors and introduces the student to secondary authors whose works are also of significant literary, philosophical or historical value. The study is unified by an examination of recurring philosophical ideas and literary themes important to understanding the development of new genres and styles. Please consult the professor for information on the theme treated and the works to be studied in any given semester.

FORMAT: Seminar
PREREQUISITE: 3000-level French literature course

FREN 4700.03: La révolution romantique/The Romantic Revolution.
Romanticism is viewed primarily as a rebellious and creative force which greatly contributed to the redrawing of traditional society. The origin, main themes and trends of the movement are studied with an attempt to show Romanticism as a European movement, the impact of which was felt in fields beyond the boundaries of literature. Classes are conducted as seminars. The choice of topics depends largely on the students' previous experience; they include works by Mme de Staal, Chateaubriand, Lamartine, Hugo, Vigny, G. Sand and others.

FORMAT: Seminar
PREREQUISITE: 3000-level French literature course

FREN 4701.03: Le roman du dix-neuvième siècle/ The Nineteenth-Century Novel.
Intensive study of the work of a major novelist of the 19th century: e.g. Stendhal, Flaubert, Balzac, Zola, Sand; a study of the novel and of its place in the development of the 19th-century novel and of its place in the development of the 19th-century novel and of its place in the development of the novel and of lunch in the genre.

FORMAT: Seminar
PREREQUISITE: 3000-level French literature course

FREN 4710.03: Du symbolisme au surréalisme/From Symbolism to Surrealism.
Analysis of the evolution of French literature from the various symbolist manners of Verlaine, Rimbaud, Mallarmé, Lautréamont and Lautréamont through the period of Jarry and Dada, to the aspirations and paradoxes of Surrealism viewed, principally, through the work of Breton, Eluard, Aragon and Dali.
FREN 4801.03: Le Nouveau Roman/Anti-novels of the 20th Century.
In this course we are mainly interested in fictional techniques: how the author creates his illusion. Each of the works selected for detailed study is important due to the author's rejection of conventional ideas regarding the form of the novel.
FORMA T: Seminar
PREREQUISITE: 3000-level French literature course

FREN 4811.03: La poésie francophone de Perse et Char à Senghor et Césaire/ Francophone Poetry from Perse and Char to Senghor and Césaire.
Discussion of the works of five or six major francophone poets of the modern period, chosen from: Perse, Reverdy, Claudel, Char, Frémaud, Senghor, Tchicaya, Césaire, Glissant, Miron and others.
FORMA T: Seminar
PREREQUISITE: 3000-level French literature course

FREN 4902.03: FREN 4903.03: Écrivains québécois contemporains/Contemporary Québec Writers.
In depth study of one or more contemporary Québec writers. Approved with Canadian Studies.
FORMA T: Seminar
PREREQUISITE: 3000-level French literature course

FREN 4904.03: Écrivaines québécoises/ Québec Women Writers.
This course will explore the condition of women as revealed in texts by Québec women writers. In any given year different writers and time periods will be covered, and a variety of genres may be included. Approved with Canadian Studies.
FORMA T: Lecture/discussion
PREREQUISITE: 3000-level French literature course, preferably French Canadian

CROSS-LISTING: GWST 4250.03

FREN 4933X/Y.00: Séminaire “de spécialisation”/Honours Seminar, Honours Essay.
The honours seminar is a compulsory preliminary to the honours essay or oral presentation and is given as a full term course for honours students in their graduating year writing their Honours Essay in French. The seminar prepares students to write the honours essay, beginning with a detailed outline of the work. It provides instruction, advice, and guidance on all the essential steps for producing the honours essay, from selecting and researching a topic, through planning and drafting the text, to matters of form and style. Students continue the work begun in the seminar by working individually with a supervisor during the winter term.
FORMA T: Seminar
PREREQUISITE: Only open to students in graduating year of French Honours program.

FREN 4994.03: FREN 4995.03, FREN 4996.03/FREN 4997.03, FREN 4998.03/FREN 4999.03: Recherches indépendantes/Independent Research.
May only be taken with the approval of the Chair or the Undergraduate Advisor.
FORMA T: Independent study/seminar
PREREQUISITE: 3000-level French literature or linguistics course

I. Introduction
Gender and Women's Studies is a dynamic and rapidly expanding interdisciplinary area of study. An alternative to the traditional curriculum, Gender and Women's Studies provides students with the opportunity to examine history, social structures, the sciences, language, literature, and culture from critical and illuminating perspectives.
At Dalhousie, students can currently enter the following programs in Gender and Women’s Studies: a Minor, a Major, a Double Major, or a Combined Honours program. These programs include courses in the disciplines of Economics, English, History, Music, Philosophy, Political Science, Sociology, and more.

Location: 1376 LeMarchant Street
Multidisciplinary Centre
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2980
Fax: (902) 494-1909
Email: gwst@dal.ca
Website: http://www.dal.ca/gwst

Dean
Summerville-Murray, R., ATCL Dip (Trinity College, London), BA, MA (Canterbury), PhD (Leicester)
Coordinator
Warwick, J. (904-1126)
Professor Emerita
Shevlin, S. B., BA (York), PhD (Stanford), FRSC
Faculty
Akbulut-Yuksel, M. (Economics)
Bain, J. (Music)
Baker, R. (Theatre)
Bauer, S. (Music)
Bergeron, K. (Philosophy)
Brown, C. (School of Social Work)
Browne, M. (School of Social Work)
Brownlee, S. (Theatre)
Carbert, L. (Political Science)
Cooper, A. (Sociology and Social Anthropology)
Dolman, S. (Philosophy)
Dorste, M. (Political Science)
Edwards, E. (Contemporary Studies)
Fitting, E. (Sociology and Social Anthropology)
Gambelud, L. (Sociology and Social Anthropology)
Gardiner Barber, J. P. (Sociology and Social Anthropology)
Ginn, D. (Law)
Glowacki, D. (Sociology and Social Anthropology)
Jackson, L. (Health and Human Performance)
Kesselring, K. (History)
Kuehnert, L. (History)
Ladybug, J. (English)
Martin, M. (Sociology and Social Anthropology)
McClain, T. (History)
Meynell, L. (Philosophy)
Morris, R. (Early Modern Studies)
Namaa, M. (Health and Human Performance)
Richard, B. (School of Social Work)
Stone, M. (English)
Tillotson, S. (History)
Ujiki, K. (International Development Studies)
Warwick, J. (Music)
Whelan, E. (Sociology and Social Anthropology)
Studies than the BA (15 credit) minor in Gender and Women's Studies. Students can currently enter four programs in Gender and Women's Studies: a BA in the traditional disciplines or in other interdisciplinary programs that are cross-listed with Gender and Women's Studies core courses.

Students can combine Gender and Women's Studies courses with courses either in a traditional discipline or with another interdisciplinary program such as International Development Studies, Canadian Studies, or Contemporary Studies.

Departmental Requirements
- At least 10 and no more than 14 credits beyond the 1000 level in two allied subjects, one of which is Gender and Women's Studies, with no more than eight and no fewer than five in either
- At least two credits in each of the two subjects chosen shall be beyond the 2000 level
- At least three different disciplines shall be represented in a student's selection of cross-listed Gender and Women's Studies courses.

D. BA with Combined Honours
Four year, 20 credit program
Students can enter a BA with Combined Honours program in Gender and Women's Studies and a range of other subjects including Biology, Classics, Contemporary Studies, English, Environment, French, History, International Development Studies, Philosophy, Political Science, Psychology, Sociology, Social Anthropology, Sustainability, and Theatre. Students interested in any of these combinations or any other that involves Gender and Women's Studies and another subject should consult with the Departments concerned.

General Degree Requirements
Please read the detailed description of BA with Combined Honours Program in "Degree Requirements" section of this calendar.

Departmental Requirements
- At least three different disciplines shall be represented in a student's selection
- At least two credits in each of the two subjects chosen shall be beyond the 2000 level
- At least three different disciplines shall be represented in a student's selection of cross-listed Gender and Women's Studies courses.

II. Degree Programs
Gender and Women’s Studies programs provide preparation for careers in a variety of fields, as well as for professional schools or graduate programs. For example, graduates can work as consultants, policy analysts, and officials in government and non-governmental organizations, in business and industry, and in educational institutions. The fields they enter include employment equity, public administration, international development, health care, work place conditions, personnel relations, publishing and editorial work, and public relations.

For students interested in a preparatory degree, Gender and Women’s Studies programs provide appropriate preparation for professional schools and programs in the fields of education, social work, counselling, journalism, the health professions, and certain areas of law. They also provide suitable preparation for graduate programs in Women's Studies, Gender Studies, Interdisciplinary Studies, Cultural Studies, and studies in Social Justice. Students interested in proceeding to graduate school should enter a four-year degree program.

Students may enter Gender and Women’s Studies programs in the first, second, or third year of study. In many cases, students in second or third years may already have acquired some Gender and Women’s Studies credits through taking courses in the traditional disciplines or in other interdisciplinary programs that are cross-listed with Gender and Women’s Studies core courses.

Students can currently enter four programs in Gender and Women's Studies: a BA with Combined Honours, a 20 credit BA with Major in Gender and Women’s Studies, a 20 credit BA with Double Major in Gender and Women’s Studies with a traditional discipline or with another interdisciplinary program such as International Development Studies, Sustainability, Canadian Studies, or Contemporary Studies; and a 15 credit BA with BAr in Gender and Women’s Studies.

NOTE: In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar.

A. Minor in Gender and Women’s Studies
See Minors in the College of Arts and Science section of this calendar (page 129).

B. BA (20 credit) Major in Gender and Women’s Studies
Four year, 20 credit program
This program provides a more comprehensive grounding in Gender and Women's Studies than the BA (15 credit) minor in Gender and Women's Studies. Students interested in applying to graduate programs should enter a four-year degree program.

Departmental Requirements
- At least an equal number of credits beyond the 1000 level in Gender and Women’s Studies of which at least three must be beyond the 2000 level
- At least three different disciplines beyond the 1000 level in Gender and Women’s Studies
- At least three different disciplines beyond the 2000 level
- At least three different disciplines beyond the 1000 level in Gender and Women’s Studies
- At least three different disciplines beyond the 2000 level

Please read the detailed description of BA with Combined Honours Program in "Degree Requirements" section of this calendar.

Departmental Requirements

a) At least one full credit from the following: GWST 2066.03, 2300.03, 2500.03, 2800.06 (Normally this requirement should be met in the second year of the program.)

b) At least one full credit 6000 level Gender and Women’s Studies course, either Directed Readings, Special Topics, or cross-listed courses (Normally this requirement should be met in the fourth year of the program.)

c) To meet the Honours Examination requirement when Gender and Women’s Studies is the major subject, students will prepare a research paper under the supervision of a Gender and Women’s Studies faculty member and will take GWST 4900E/Y.05.
III. Course Descriptions

NOTE: Some courses may not be offered every year. Please consult the current timetable to determine if these courses are offered. More detailed information can be obtained from the Gender and Women's Studies office.

In addition to the courses listed below, appropriate courses in other departments (for example, Special Topics courses on women and/or gender issues) may be taken as Gender and Women Studies credits with the permission of the Instructor concerned and the Coordinator. Students may also select Gender and Women's Studies courses at Saint Mary's or Mount Saint Vincent Universities, subject to the rules and regulations of the College of Arts and Science at Dalhousie regarding transfer credits and in consultation with the Gender and Women's Studies Coordinator.

GWST 1010.03: Introduction to Gender and Women's Studies.

Gender and Women's Studies is an interdisciplinary field aimed at developing a critical understanding of gender as a category of analysis in scholarly inquiry and social dynamics. Paying close attention to the experiences and perspectives of women, students have the opportunity to examine history, social structures, the sciences, language, literature, culture from the illuminating perspective of gender. In all these areas, Gender and Women's Studies investigates how gender intersects with other variables such as race, class, and cultural difference. This introductory course provides an overview of some of the central topics of Gender and Women's Studies, such as the sex/gender distinction, understanding sexualities, the social construction of motherhood, changing definitions of masculinity and femininity, and the place of sex and gender in the legal system.

FORMAT: Lecture/discussion

GWST 1015.03: Gender and Diversity.

This course continues from "Introduction to Gender and Women's Studies" to focus particularly on the many ways that gender as a social system interacts with other systems of power and inequality. We all make sense of our lives through multiple identities that combine in shifting ways to define our opportunities for action and the limits we face. Identities based on gender, race, ethnicity, age, class, sexuality, disability, nation, or religion are blended in varied ways for individuals, but they are also constructed and self-perpetuated. They are also elements of larger social systems. Topics may include the multiple identities of the body: race, gender, and violence; diversity and work; contemporary transformations of the family; and gender and globalization.

FORMAT: Lecture/discussion

GWST 2000.03: Directed Readings in Gender and Women's Studies.

Readings and research in Gender and Women's Studies on selected topics. In exceptional circumstances and with the permission of both the Gender and Women's Studies Coordinator and the Instructor concerned, students may arrange to take an appropriate course of study in Gender and Women's Studies that are not otherwise available as one-term courses in Gender and Women's Studies. To find out how to register in one of these courses, please see http://www.dal.ca/gwst

FORMAT: Variable

GWST 2066.03: Women, Gender, and Music.

This course explores the variety of ways in which gender shapes musical discourse. It will focus particularly on three broad topics: the history of female contributions to music as musicians, composers, patrons and listeners; musical constructions of gender, race, class and sexuality; and feminist critiques in recent musical discourse. No formal training in music is required.

FORMAT: Lecture/discussion

GWST 2217.03: Women and the Economy.

This course will provide a broad and relatively non-technical analysis of gender issues in the economic experience of women. For example, we will study questions such as: Are there feminists who are economic? How do economic conditions improve for women in Canada over the past 30 years? How do economic outcomes for women in Canada compare with those of other affluent countries? Is there a glass ceiling for women in the workplace? Is there gender discrimination in the Canadian labour market? Who does the unpaid work? What are the economic consequences of divorce? Are women more likely than men to be poor? Are there inequalities within families?

FORMAT: Lecture

PREREQUISITE: ECON 1011.03/1022.03 with a grade of C- or better

GWST 2230.03: Making Gender: Men, Sex and Gender in Pre-Modern Europe.

This course examines the diverse and fascinating ways western cultures have shaped what it means to be ''male'' and ''female'' over the centuries in the Roman Empire and continuing to the age of the French Revolution. The course examines such topics as ancillary, dating rituals, female ''popes'', changing notions of the physical differences between the sexes, and early struggles for women's rights.

FORMAT: Lecture/tutorial

GWST 2301.03: Making Gender: Male and Female from the American Revolution to the Present.

This course examines the diverse and fascinating ways western cultures have shaped what it means to be ''male'' and ''female'' over the centuries in the Roman Empire and continuing to the age of the French Revolution. The course examines such topics as ancillary, dating rituals, female ''popes'', changing notions of the physical differences between the sexes, and early struggles for women's rights.

FORMAT: Lecture/tutorial

GWST 2310.03: Women and Gender in Early Modern Science.

This course will explore the roles of women, and questions about women's nature, in the development of early modern science. The course will consider several intertwined aspects of scientific culture in the sixteenth, seventeenth, and eighteenth centuries: first, we will look at the place of women in the scientific institutions of the time. Although women were, for the most part, excluded from universities and scientific academies, some women were able to do scientific work through their participation in salons and craft guilds. The second part of the course will look at the contributions of some particular women to the fields of physics, astronomy, botany, and medicine. We will then examine how science interpreted sex and gender. We will pay special attention to the biological sciences and their treatments of sex differences, conception, and generation. We will consider how these biological theories were influenced by, and at the same time used to uphold, various political and social structures. Finally, the course will explore the ways in which gender and nature were portrayed in the broader cultural context. We will, for example, discuss the ways in which women were depicted as sciences and as symbols of science in art and literature.

FORMAT: Lecture/seminar

GWST 2320.03: Witchcraft in Early Modern Europe.

The period of European history from 1500 to 1800 saw the rise of modern science and philosophy. It was also a period in which thousands of witch trials and executions were carried out. This course will seek to understand how these seemingly contradictory developments could have occurred simultaneously. The course will examine changing conceptions of the witch and witchcraft in their historical, intellectual, cultural, religious and political contexts. The course will pay special attention to early modern notions of gender and sexuality and their influence on the witch hunts and witch trials.

FORMAT: Seminar

GWST 2412.03: Human Sexuality.

This course is concerned with biological, cultural, ethical, historical, psychological, religious and semantic aspects of human sexuality. Four themes are threaded throughout the course -- diversity in gender roles and in sexual attitudes, behaviours and customs; critical thinking; making responsible decisions; sexual health. The course is designed to support positive integration of sexuality into the lives of individuals and to foster the prevention of sexuality-related problems, at all stages of life.

FORMAT: Lecture/discussion

GWST 2500.03: Philosophical Issues of Feminism.

An exploration and examination of some of the concepts, issues, and arguments underlying feminist claims and perspectives. Such topics as pornography, rape, mothering, the nature of gender, and feminist's responses to racism will be treated.

FORMAT: Lecture

GWST 2505.03: Introduction to Gender and Women's Studies.
GWST 2800X/Y.06: Comparative Perspectives on Gender.

This course examines gender in a global perspective. Drawing upon historical and current anthropological and sociological theory the course provides a theoretically-based understanding of how gender differences are culturally produced, as well as socially, economically, politically, and spatially organized. The course begins by examining the extent to which gender experiences in society are taken for granted, perceived to be fluid in nature rather than culture. Topics in the first half of the course include evolutionary and materialist perspectives, feminism, and equality, the domestic sphere and the division of labor, masculinities, sexuality and the state. Readings are broad and include ethnographic accounts of the various ways that gender is experienced around the world. The second half of the course examines power relations and political discourse, work and gender, the politics of reproduction, gender, violence, development and the global economy, and gender and belief systems. By examining some of the contemporary struggles of both women and men cross-culturally, the course is designed to help students understand the unfathomable breadth of gendered experiences and issues therein.

NOTE: Students taking this class must register in Y and Y in consecutive terms; credit will be given only if both are completed concurrently.

FORMAT: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, 1050X/Y.06, 1100X/Y.06, 1200X/Y.06 or Gender and Women's Studies class

GWST 3000.03/3001.03/3002X/Y.06: Directed Readings in Gender and Women's Studies.

Readings and research in Gender and Women's Studies on selected topics. Students may take appropriate courses in other Departments under these numbers, with the permission of the instructor and the Gender and Women's Studies Coordinator, or they may construct their own reading list and research project in consultation with an appropriate faculty member and the Coordinator. To find out how to register in one of these courses, please see http://www.dal.ca/gwst

NOTE: Students taking GWST 3002X/Y.06 must register in X and Y in consecutive terms; credit will be given only if both are completed concurrently.

FORMAT: Variable

PREREQUISITE: Variable

GWST 3006.03: Comparative Perspectives on Gender and Work.

This course will use comparative perspectives to explore a range of topics relating to gender, race, and class. The course will deal with wage-work, household/leisure labour, the informal sector, masculinity and femininity in the work place, occupational segregation, employment policies and practices (such as affirmative action, pay equity), and unionization. The context will be the changing global economy, and gender and ethnicity and their relationship to body politics.

FORMAT: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, 1050X/Y.06, 1100X/Y.06 or Gender and Women's Studies class

GWST 3300.03: Family and Community in North America 1600-1900.

This course introduces students to key social and cultural issues therein. Students will learn the undeniable breadth of gendered experiences and issues therein. Students will learn the undeniable breadth of gendered experiences and issues therein.

NOTE: Students taking this class must register in Y and Y in consecutive terms; credit will be given only if both are completed concurrently.

FORMAT: Lecture/discussion

PREREQUISITE: Second year and above.

GWST 3304.03: Through her Eyes: Women and the Documentary Tradition.

This course will explore the various female movie-makers in the field of documentary filmmaking. Women documentary makers have produced extensive bodies of work that challenge many societal assumptions about gender, class, race, the function of political power, sexuality and peace-war. They have worked at every level within the process: as directors, cinematographers, editors, sound recordists, producers, writers and fund-raisers. A variety of documentaries made by women from diverse backgrounds will be screened and analyzed along with a close reading of selected critical texts. Students will identify the similarities and differences in subjects, themes, style, aesthetics, and approaches to creation, production and distribution.

FORMAT: Film Screening and Seminar

GWST 3331.03: Film Theory II: Desire in Cinema.

This course focuses on theories of gender, sexuality and desire in cinema. It addresses debates around the representation of gender, sexuality and desire on screen, as well as theoretical approaches to the discipline.

FORMAT: Lecture/discussion

PREREQUISITE: One of the Film Studies courses (or other exposure to the discipline)

CROSS-LISTING: THEA 3331.03
GWST 3350.03: Rewriting Gender.
Age as a widespread view that postmodernism is identical to feminism, the readings in this course demonstrate that recent literature by women, both fiction and critical theory, has widely adopted postmodern strategies in order to advance feminist views. The postmodern center has allowed female authors to question the way in which women's subjectivity has always been conformable to male-oriented processes of signification. The works of fiction covered in this course, by Judith Butler, Angela Carter, Marilynne Robinson, Octavia Butler, and others, exemplify aesthetic subversions of phallocentric discourse. Literary texts will be supplemented with theoretical works by leading feminist/post-structuralist thinkers such as Judith Butler, Drucilla Cornell, Diane Elms, and Gayatri Spivak. The course includes video-taped material and slide-shows of postmodern feminist art.
FORM: Seminar
CROSS-LISTING: CTMP 3350.03

GWST 3358.03: Slavery, Gender, and Power: Women in Nineteenth Century America.
This course studies the tangled histories of slavery and gender in nineteenth-century America. Principal topics include the lives of female slaves, the cult of domesticity, the role of early feminism, the role of women in the destruction of slavery, and the tension between gender and race.
FORM: Seminar
CROSS-LISTING: HIST 3358.03

GWST 3426.03: Sex and the State.
This course will consider the role of the state and other institutions in the social, moral and legal production and regulation of sex and gender, particularly in Western countries. It will begin with a brief historical overview of the role of religious prescriptions in the social and legal regulation of sex, and the refinement of laws and policies that have been implicated in sex and gender-based discrimination. We will also address a range of contemporary topics such as the decriminalization of homosexuality, hate crimes against sexual minorities, the politics of relationship recognition, state response to HIV/AIDS, gender-related refugee claims; and developments in the regulation of reproductive technology.
PREREQUISITE: POLI 1010, 1015, 1030, 1035, 1050, 1055, 1100, 1103, 2210, 2230, 2350, 2410, 2420, 2430, 2440, 2450, or permission from the instructor.
FORM: Seminar
CROSS-LISTING: POLI 3426.03

GWST 3500.03: Contemporary Feminist Theories.
Contemporary feminism is not a single theory but comprises multiple theoretical perspectives, often linked by some common concerns and a diversity of motivations and approaches. This course aims to present some of the richness and variety in feminist theory while offering students the opportunity for sustained critical engagement with influential feminist thinkers.
FORM: Seminar
PREREQUISITE: At least two previous classes in Gender and Women's Studies, or at least two previous classes in Philosophy, or permission of the instructor.
FORM: Seminar
CROSS-LISTING: PHIL 3170.03, PHIL 5170.03, GWST 5170.03

GWST 3600.03: Sexualization of Western Political Thought.
Representations of women and constructs of feminism are a significant part of mainstream western political thought. This course explores these topics in the work of leading western philosophers, such as Aristotle, Aquinas, Hobbes, Locke, and Rousseau, with an understanding of the relation of ideas of sexual difference to general systems of thought. The course also considers how conceptions of gender difference and equality shape contemporary political, legal and philosophical discourses and practices, including in feminist critical theory and international human rights scholarship and activism. We will consider the strategies used by men and women in the past century to address systemic discrimination and advantage.
FORM: Seminar
PREREQUISITE: POLI 1010, 1015, 1030, 1035, 1050, 1055, 1100, 1103, GWST 1010, 1015, 2080, 2085, 2086, 2200, 2217, 2300, 2301, 2310, 2320, 2350, 2410, 2420, 2430, 2440, 2450, or permission from the instructor.
FORM: Seminar
CROSS-LISTING: POLI 3600.03

GWST 3800.03: Gender and Health.
This course aims to reflect upon and challenge our taken-for-granted assumptions about the gendered dimensions of health and healthcare. Rather than take the categories of ‘women’s health’ and ‘men’s health’ as its foundation, the course revolves around two main questions: (1) how does the field of health and healthcare define and enforce the very categories of ‘women’s’ and ‘men’s’? (2) how does gender, thus defined and enforced, affect the health, healthcare, and health work of those defined as men, women, or other? We will consider these questions by examining particular health topics that have a strongly gendered component, such as sexual health, reproductive health, and disability. Throughout the course, we will explore the theoretical perspectives used in the field; the process, world and challenges to it; the gendering of particular health problems and health professional, the medicalization of femininity and, more recently, masculinities; and the relationships between gender and other forms of social classification (e.g. race, class, sexual orientation).
FORM: Lecture
PREREQUISITE: One of SOAS 1000 Y/0.06, 1010Y/0.06, 1100Y/0.06 or 1200Y/0.06.
CROSS-LISTING: SOAS 3403.03

GWST 3810.03: Women and Aging.
As women grow older the expediency of aging is generally more difficult for them than for men. Somewhere in the future, attention to the aging process exacerbates the difficulties facing women in modern society. Disempowering older women is usually accomplished in small increments. “Old woman” is a pejorative label; the older a woman becomes, the less credibility she generally has; this is especially true for women of color, poor women, latinas, and women who are physically challenged. While aging is a biological process, it can be medically constructed. Specifically, under patriarchy, older women are seen as a burden, discredited, and segregated by both men and younger women. They are usually not taken very seriously, nor seen as a threat. This course will explore the issues related to social, psychological, political and economic factors that are major determinants to the well-being of aging women based upon race, gender, sexual orientation, disabilities and class inequities.
FORM: Lecture/discussion/seminar
PREREQUISITE: SOAS 1010Y/0.06, 1010Y/0.06, 1100Y/0.06 or 1200Y/0.06, or 2 credits in Women’s Studies
CROSS-LISTING: SOAS 3810.03, NURS 4370/4800.03

GWST 3911.03: Gender in Theatre: A Cross-Cultural Survey.
This seminar course examines the roles gender has played in the shaping of world theatre alongside the roles the theatre has played in shaping of various cultural conceptions of gender. By exploring plays and performances from Europe, North America, China, Japan, India, and/or other traditions, we will attempt to understand the ways in which various forms of representation reflect their cultures’ governing images of masculinity and femininity. In the process, we will interrogate the historical and cultural variability of the notion of ‘gender’ itself. The main objective of the seminar is to introduce students to the major theoretical debates in gender studies, and to see how gender itself can actually be shaped by performance.
FORM: Lecture/seminar, 3 hours
PREREQUISITE: None, although a background in Gender and Women’s Studies, Theatre or Dramatic Literature will be an asset.
FORM: Lecture/seminar, 3 hours
CROSS-LISTING: THEA 3911.03

GWST 3912.03: Gender Theory and Contemporary Performance.
This seminar course offers students an opportunity to encounter some of the most provocative and challenging gender theory of recent years in relation to contemporary theatre, film and performance arts. Students will read considerations of the relationship between gender, performance and identity by such authors as Jacques Lacan, Michel Foucault, Helene Cixous, Luce Irigaray, Julia Kristeva, Judith Butler, Peggy Phelan and Camille Paglia, among others. Alongside these works, we will examine contemporary performances, from the popolar to the experimental. Through this intellectual exploration of theory and performance, we will aim to expand our understanding of the ways in which gender roles are created, maintained, questioned and changed in contemporary culture(s).
FORM: Lecture/seminar (3 hours plus 2-hours attendance)
CROSS-LISTING: THEA 3912.03

GWST 4000.03: 4100.03/4200X/Y.06: Directed Readings in Gender and Women’s Studies.
Advanced readings and research in Gender and Women’s Studies on selected topics. Students may take appropriate courses in other Departments under these numbers, with the permission of the Instructor and the Gender and Women’s Studies Coordinator; they may construct their own reading list and research project in consultation with an appropriate faculty member, and the Coordinator. To find out how to register in one of these courses, please see genderstudies@artsandsocialsciences.dal.ca
CROSS-LISTING: LAWS 2152.03
PREREQUISITE: This class is open to all 2nd and 3rd year Law students and all 

FORMA T: Seminar
feminist legal theories on particular areas of the law. This is followed by student 
concepts of equality under the Charter. The course then considers the impact of 
major focus is on equality rights in Canada, from the early cases to current 
GWST 4150.03: Special Topics in Gender and 
Women's Studies I.
In this seminar course, students will explore some of the current research on a 
focused topic in Gender and Women's Studies or gender theory. Topics may be drawn from such areas as queer theory, gender and embodiment, contemporary 
theory of sexuality, representations of gender, women and eating disorders, 
postcolonial feminist theory, and so on. The course will be directed to majors and 
honours students in Gender and Women's Studies, but will be open to qualified students from other disciplines.
FORMA T: Seminar
PREREQUISITE: One full credit in Gender and Women's Studies or permission 

GWST 4151.03: Special Topics in Gender and 
Women's Studies 2.
In this seminar course, students will explore some of the current research on a 
focused topic in women's studies or gender theory. Topics may be drawn from such areas as queer theory, gender and embodiment, contemporary theory of 
sexuality, representations of gender, women and eating disorders, postcolonial 

GWST 4200X/Y.06: Directed Readings in Gender and 
Women's Studies.
Readings and research in Gender and Women's Studies on selected topics. Students may take appropriate courses in other Departments under these numbers, 
with the permission of the instructor and the Gender and Women's Studies 
Coordinator, or they may construct their own reading list and research project in 
consultation with an appropriate faculty member and the Coordinator.
NOTE: Students must register in X and Y in consecutive terms; credit will be given only if both are completed 
consecutively.
FORMA T: Variable
PREREQUISITE: Variable

GWST 4300.03: Introduction to Women and the Law.
The course begins with a focus on feminist legal theory, and the integration of feminism with issues of race, class, sexual orientation, and disability. The second 
major focus is on equality rights in Canada, from the early cases to current 
concepts of equality under the Charter. The course then considers the impact of feminist legal feminism on particular areas of the law. This is followed by student class presentations on major paper topics.
FORMA T: Seminar
PREREQUISITE: This class is open to all 2nd and 3rd year Law students and all 

GWST 4315.03: Women's Suffrage From The French Revolution To World War I.
The question of women's participation in representative government first emerged 
during the French Revolution by 1792; only two European countries had 
granted women the right to vote. This seminar explores the suffrage movement in 
the nineteenth century and the obstacles in the process of women's enfranchisement.
FORMA T: Seminar
PREREQUISITE: A modern European history course above the introductory level 
CROSS-LISTING: HIST 4613.03
GWST 4330.03: Topics in the History of Sexuality.
This seminar is intended for senior undergraduates. The specific content of the 

GWST 4355.03: Narrative Strategies in Nineteenth- 
Century Music: Gender, Identity, and Social Politics.

GWST 4402.03: Recent French Feminist Theory.
The course will concentrate on some of feminism's most challenging voices, 
theses that have emerged in France in the past 50 years. Issues include: 

GWST 4500.03: Topics in Feminist Philosophy.

GWST 4500.03: Topics in Feminist Philosophy.
In this course, we shall explore some of the current research in a focused area of 
feminist philosophy. Previous topics have included feminist ethics, feminist 
epistemology, postmodern feminism, the feminist sexuality debates, and 
ecofeminism.
FORMA T: Lecture/tutorial
PREREQUISITE: Permission of the instructor 
CROSS-LISTING: MUSC 4550.03
GWST 4900X/Y.03: Honours Thesis.

Students writing an honours thesis in Gender and Women's Studies as the primary subject of a Combined Honours program must enroll in this course. The course meets five times over the course of the academic year in which the student writes her thesis. The grade for the honours thesis is assigned under this course number.

NOTE: Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar and supervised thesis writing

PREREQUISITE: Admission to the honours program

IV. Related Courses

These courses are subject to change; consult the program office for offerings.

Courses Offered at Mount Saint Vincent University and Saint Mary's University

Courses offered within the Women's Studies programs at these universities are available to Gender and Women's Studies majors at Dalhousie. Courses offered are subject to change.

Please consult:

1. Women's Studies, Mount Saint Vincent (902) 457-6547;
2. Women's Studies, Saint Mary's University (902) 420-5842.

These courses must be taken on a letter of permission (see the Dalhousie Gender and Women's Studies Program Coordinator).

Geography

Note: There is no Geography program at Dalhousie, however several courses taught in various departments are commonly recognized as Geography courses.

Only courses which are cross-listed in Science departments may be used to meet the life or physical science subject requirement for the BA degree.

I. Minor in Geography

See Minors in the College of Arts and Science section of this calendar (page 128).

II. Course Descriptions

GEOG 1030.03: Introduction to Physical Geography.

This non-lab science course examines the nature of weather and climate, earth's surface features and processes, and internal processes that contribute to landform development. An integral component of the course is an exploration of the representation and interpretation of physical geographic data through the examination of a variety of maps.

NOTE: There are no pre-requisites for this course and students may take this class in addition to any other first year Earth Sciences class.

FORMAT: Lecture-class 3 hours each week, and 1 hour tutorial weekly. Some classes may include map work.

CROSS-LISTING: ERTH 1030.03

GEOG 1035.03: Introduction to Human Geography.

Human geography examines the ways that people perceive, use, and alter the landscapes they occupy. Two themes run throughout the class. One theme deals with the aspects of culture that characterize different social groups. These are matters of material culture as well as group behaviour, and belief systems. The second theme has to do with the systems of production, livelihood, spatial organization, and administration that societies erect. Intertwined with these themes is the interaction of human societies with each other and their environments. The class introduces the principal tools of human geographers: maps, demography, and analysis of cultural patterns.

NOTE: This class cannot be used to meet the life or physical science subject requirement for the BA degree.

FORMAT: Lecture 3 hours

GEOG 1060.03: Earthquakes, Volcanoes and Natural Disasters.

Earthquakes, meteorite impacts, rapid climate change, volcanic eruptions, hurricanes, landslides, solar flares, and floods are natural disasters that affect our economy, public policy, and safety. Where, why and how frequently do natural disasters occur? Are predictions possible? Are media portrayals of risk and damage realistic? This course, aimed at the nonspecialist, investigates these intriguing questions. Excerpts of “disaster films”, in conjunction with lectures and discussions are used to identify the causes, consequences and sometimes erroneous perceptions of natural hazards. Examples from Atlantic Canada and contemporary disasters are used to assess local risk and real-time events worldwide.

FORMAT: Lecture 3 hours

CROSS-LISTING: ERTH 1060.03

GEOG 2000.03: Cartography.

Maps, which are visual representations of our world, are essential aids to disciplines that span archaeology to zoology. Navigation is the art and science of finding one's way through both natural and built landscapes. This class primarily uses hands-on assignments to investigate how maps are constructed and interpreted (including concepts of spatial reference systems, scale, projections, symbols, and design), how maps can distort perceptions, and can influence one's decisions. Students also study navigation by compass, global positioning systems (GPS), and dead reckoning.

FORMAT: Lecture 3 hours plus occasional field trips as appropriate

PREREQUISITE: ERTH/GEOG 1030, or ERTH 1080
GEOG 2001.03: Landscape Analysis.
Describe the use and planning needed to understand the influence of physical, biological, and cultural systems in landscape evolution, and the relevance of that information in analyzing land capability. Students develop inventory and analysis tools for understanding environmental processes and their implications for design and planning. These include GIS data and a lab component.

FORMAT: Lecture/lab 3 or 4 hours
PREREQUISITE: ERTH 1030.03
CROSS-LISTING: PLAN 2001.03

GEOG 2006.03: Space, Place and Geographic Information Systems.
Students use Geographical Information Systems (GIS) for data collection, coordination, and analysis. Properly interpreted, GIS data contribute to informed decision-making. This course explores the application of GIS in planning within a project-centric setting. Students learn to use GIS to address and use site-planning issues. The course also considers mapping standards used within the field of planning, and examines legal, privacy, and ethical implications of using GIS data in the public realm.

FORMAT: Lecture/lab. Three hours weekly
PREREQUISITE: PLAN/GEOG 2001
CROSS-LISTING: PLAN 2006.03

GEOG 2070.03: Area Studies on Mexico and Central America.
Following an examination of the indigenous heritage and the colonial legacy of the conquistadors, the class deals principally with the contemporary period, examining the Mexican Revolution and its aftermath, the Somoza dynasty, the conquistadors, the class deals principally with the contemporary period, and the current period, examining the Mexican Revolution and its aftermath, the Somoza dynasty, the class deals principally with the contemporary period, and the current period, examining the Mexican Revolution and its aftermath. The course also considers the economic systems of Latin America and the ingredients of political and social change.

FORMAT: Lecture discussion 2 hours conducted in English
PREREQUISITE: No prerequisites. Open to students in all departments. No knowledge of Spanish necessary
CROSS-LISTING: HIST 2383.03

GEOG 2100X/Y/06: Environment and Culture.
Concern about the environment is a widespread phenomenon as virtually everyone is confronted with environmental issues—the global warming, the devastation of the ozone layer or the continuing problems of water pollution and soil waste disposal. Furthermore, we are becoming increasingly aware of how environmental issues affect our lives and global implications. The course examines the interaction of human culture and the environment. Resistance to change is manifested in many forms. The course explores the key concepts related to cultural and environmental sustainability. The course will examine the impact of cultural and environmental sustainability on human societies and the implications for future generations.

FORMAT: Lecture.Under 90 students. English
PREREQUISITE: One of SOSC 1050X, SOSC 1050Y, SOSC 1050A, SOSC 1050B, SOSC 1050C, SOSC 1050D
CROSS-LISTING: SOSC 2100.06

GEOG 2201.03: Introduction to Development I.
Poverty, inequality and injustice are widespread throughout the contemporary developing world. This course will examine the reasons for this situation to be. It begins by analyzing the different meanings of the terms “development” and “sustainable development” and then examines the major approaches that have shaped practical development policies on the ground in the Global South over the past 60 years. The course also examines the legacies of history for contemporary development efforts in the Global South through specific case studies.

FORMAT: Lecture/tutorial
PREREQUISITE: Completion of five full credits at the 1000 level or permission of the instructor
CROSS-LISTING: INTD 2001.03

GEOG 2202.03: Introduction to Development II.
The course builds on the approaches and the strategies they have used to promote and resist development, including governments, non-governmental organizations (NGOs), the World Bank and IMF, and popular social movements in the Global South and North.

FORMAT: Lecture/tutorial
PREREQUISITE: Completion of five full credits at the 1000 level or permission of the instructor
CROSS-LISTING: INTD 2002.03

GEOG 2206.03: Africa: An Introduction.
The course will focus on contemporary Africa. Stereotypical portrayals of Africa will be examined and critiqued with the goal of emphasizing the complexity and diversity of the continent in order to better understand the challenges and opportunities and possibilities of African development in the twenty-first century.

FORMAT: Lecture/tutorial
CROSS-LISTING: INTD 2106.03

GEOG 2336.03: Regional Development.
Most countries have richer and poorer regions. Economic development issues, policies, and theories facing more industrialized nations are analyzed with particular focus on Canada (especially the Atlantic region), the European Economic Community, U.S.A., Japan, and Australia. Approved with Canadian Studies. In addition to the prerequisites, the student is advised to take one class in Political Science and one class in Canadian History before taking ECON 3336.

FORMAT: Seminar 2.5 hours
PREREQUISITE: ECON 1103.03 and HIST 2383.03
CROSS-LISTING: ECON 2336.03

GEOG 2800.03: Climate Change.
Most models of the atmosphere predict that increasing concentrations of greenhouse gases will continue to warm the earth’s surface and the oceans in the twenty-first century. Temperature change and its consequences are still very controversial. This class will discuss, mainly from a nonmathematical viewpoint, the reasons for the greenhouse effect, the effects of increasing greenhouse gases, and the consequences of increasing greenhouse gases. This class will examine the impact of climate change on human societies and the implications for future generations.

FORMAT: Lecture
PREREQUISITE: One of SOSC 1050X, SOSC 1050Y, SOSC 1050A, SOSC 1050B, SOSC 1050C, SOSC 1050D
CROSS-LISTING: PHYH 2800.03
EXCLUSION: ECON 2800.06, PHYS 2800.06

GEOG 3001.03: Landscape Ecology.
Landscapes reflect the interaction of natural and cultural processes. This course introduces the principles of ecology to landscape analysis. It explores relationships between environmental components in the landscape to inform community design and land use planning applications.

FORMAT: Lecture/lab 3 or 4 hours
PREREQUISITE: PLAN 2001.03 or GEOG 2001.03 or permission of the instructor
CROSS-LISTING: PLAN 3001.03

GEOG 3002.03: Reading the City.
Many cities have richer and poorer regions. Economic development issues, policies, and theories facing more industrialized nations are analyzed with particular focus on Canada (especially the Atlantic region), the European Economic Community, U.S.A., Japan, and Australia. Approved with Canadian Studies. In addition to the prerequisites, the student is advised to take one class in Political Science and one class in Canadian History before taking ECON 3336.

FORMAT: Lecture/lab 3 or 4 hours
PREREQUISITE: PLAN 2001.03 or GEOG 2001.03 or permission of the instructor
CROSS-LISTING: PLAN 3002.03

GEOG 3005.03: Cities and the Environment.
Many cities have richer and poorer regions. Economic development issues, policies, and theories facing more industrialized nations are analyzed with particular focus on Canada (especially the Atlantic region), the European Economic Community, U.S.A., Japan, and Australia. Approved with Canadian Studies. In addition to the prerequisites, the student is advised to take one class in Political Science and one class in Canadian History before taking ECON 3336.

FORMAT: Lecture/lab 3 or 4 hours
PREREQUISITE: PLAN 2001.03 or GEOG 2001.03 or permission of the instructor
CROSS-LISTING: PLAN 3005.03

Geography 227
understanding of landscape change, urban forms and patterns in human settlements through the ages.

FORMAU: Lecture/seminar 3 hours
CROSS-LISTING: PLANN 3005.03

GEOG 3006.03: Reading the Landscape.
Any landscape reflects its natural and cultural history. This course explores processes, theories, and methods of landscape interpretation. These approaches will be applied to community design problems in local landscapes.

FORMAU: Lecture-lab 1-4 hours
PREREQUISITE: PLAN 3001.03, 3002.03, or GEOG 3001.03, 3002.03
CROSS-LISTING:

GEOG 3110.03: Migration and Development.
The purpose of this course is to explore and better understand the connections between migration and development in contemporary societies. Classes will introduce or further explore one main theme or issue, such as development-induced displacement, labour migration, and HIV/AIDS undermigration. Each class will center on one or more discussion questions, exchange insights from relevant experiences of class participants or focus on a case study

FORMAU: Lecture/seminar
CROSS-LISTING: INTD 3110.03

GEOG 3114.03: Environment and Development.
This course will examine the intersections between the natural environment and different forms of social and economic development with a specific focus on developing countries. Various perspectives will be used to analyze the links between environmental issues and poverty, inequality, wealth, economic globalization and the ways in which different cultures understand and interact with the environment.

FORMAU: Lecture seminar
CROSS-LISTING: INTD 3114.03

GEOG 3165.03: Peoples and Cultures of the World: Selected Area Studies.
This course examines a specific geographic and/or cultural area. The course begins with background material on geography and history. Its focus is on the people themselves, their social organization and political, economic, and cultural systems. How they relate to globalization and development will also be examined.

CROSS-LISTING: SOAS 3165.03
EXCLUSION: SOAS 2370.03

GEOG 3210.03: Canadian Cultural Landscapes.
This course explores the theme of one “signature” landscape in each province. Contact with different geographies shaped distinctive regional histories, but at the same time, the story of each place is tied to the national narrative. These landscapes also illuminate how nature has been understood, used, and transformed since the fifteenth century.

FORMAU: Lecture and discussion
CROSS-LISTING: HIST 3210.03, CANA 3020.03

GEOG 3220.03: Coastal Communities in the North Atlantic.
Coastal communities as a social-ecological type are examined as populations, and social structures (territorial, economic, occupational, political) as they have developed in response to particular ecological and social circumstances. Various perspectives which have been applied to coastal communities are examined with regard to the contribution they may make to understanding the dynamics of these communities. The focus is on North Atlantic communities.

FORMAU: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06
CROSS-LISTING: SOAS 3220.03

GEOG 3284.03: Living in Cities.
2000 marked the first time in history that more of the global population lived in cities than in rural areas. What perspectives to anthropology and sociology offer on cities and their inhabitants? This course explores the social dynamics that constitute ‘the city’ and surveys how social scientists have studied and engaged with cities and city-dwellers. It approached ‘the city’ both as a whole and through its constituent parts: people and places. Examples may be drawn from cities large and small, near and far – including Halifax.

FORMAU: Lecture and seminar
PREREQUISITE: One of SORA 1100.06, SOAS 1050.06, SOAS 1100.06 or SOSA 1200.06 FY/P for PLAN 2005.06
CROSS-LISTING: SOAS 3284.03

GEOG 3370.03: North American Landscapes.
Landscapes are the product of human culture ordering nature for economic, social, political, religious, aesthetic and artful purposes. Landscape history analyzes and interprets the use and design of features such as fields and woodlands, roads and waterways, settlements and buildings, towns and suburbs, and parks and cities. This class examines the use and meaning of the spatial environment among the various societies in North America from the sixteenth to the twentieth centuries. Among the topics are the meaning of resource areas for indigenous peoples, the occupation and settlement of colonial populations, transportation and continental expansion, town planning, the politics of water and land in the West, preservation movements, scenic tourism, and the history and aesthetic styles of landscapes. The class welcomes non-history students with an interdisciplinary interest in issues regarding planning and design, cultural ecology, and the governance of resources.

FORMAU: Lecture/discussion 3 hours
CROSS-LISTING: HIST 3370.03

GEOG 3400.03: Human Health and Sustainability.
This course examines the relationships between the health of populations and health determinants in the context of environmental sustainability. Weekly laboratory exercises will teach students how to use geomatics (GIS, GPS, and remote sensing technologies) and epidemiological tools to be used to assess the links between the health of human populations and the health of the environment, and how to use these tools for environmental health research.

FORMAU: Lecture 3.0 hours, Lab 1.5 hours
PREREQUISITE: Must be a third year student or have permission of instructor
CROSS-LISTING: ENVIS 3400.03

GEOG 3440.03: Geomorphology.
Geomorphology is the quantitative study of Earth’s surface processes and landforms applies to geology, civil engineering, hydrology, and environmental management. We investigate slope stability, weathering and soils, sediment production, wind-driven coastal and fluvial environments, tectonic landforms, and river, glacial and periglacial processes.

FORMAU: Lecture 3.0 hours, Lab 3.0 hours including mandatory field trips
PREREQUISITE: ERTH 1080 and one other 1st year ERTH course; 1090 recommended; or SCIE 1502.21, or 1503.21, or SCIE 1504.27, or SCIE 1510.33 or permission of the instructor AND completion or concurrent enrolment of a 1000-level mathematics class, a 1000-level physics class, and a 1000-level chemistry class.
CROSS-LISTING: ERTH 3440.03

GEOG 3500.03: Exploring Geographic Information Systems.
Geographic Information Systems (GIS) as a tool for the management of georeferenced data, have become indispensable for disciplines where location of objects and pattern of processes is important. GIS plays a significant role in a wide range of applications, from modeling, to analysis and predictions, to decision making. The course is aimed at a broad base of potential users and draws on examples of the role of GIS in global climate change, mineral exploration, preservation of biodiversity, coastal zone management, resource depletion, and many other present and future environmental issues. The course material will be of interest to those studying geoscience, environmental science, ecology, marine biology, oceanography, epidemiology, urban and rural planning, civil engineering, and any other field involving spatial data.

Laboratory exercises emphasize the principles of spatial analysis and the integration of databases and GIS (global positioning systems) data into GIS. Exercises draw on the diversity of GIS applications in a number of application areas.

FORMAU: Lecture 3.0 hours, Lab 3.0 hours
PREREQUISITE: Two years of university study or equivalent or instructor’s permission.
CROSS-LISTING: ERTH 3500, ERTH 3500, ENVIS 3500
EXCLUSION: Credit will only be given for one of GEOG 3500, SCIE 3600, ERTH 3500, ERTH 5500, ENVIS 3500

GEOG 3550.03: Exploring Geographic Information Systems.
GEOG 3633.03: Spatial Information and GIS in Ecology.
A hands-on approach to understanding and using spatial information, this class introduces students to Geographic Information Systems (GIS) as a tool to answer ecological questions. Together, students conduct a major field project, collecting data, creating maps using GIS, and interpreting spatial patterns, to address and applied problem in ecology.
NOTE: Offered in the summer through DEASIDE; an auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.
PREREQUISITE: BIOL 2060.03
CROSS-LISTING: ENVS 3633.03, BIOL 3633.03

GEOG 4440.03: Geomorphology and Landscape Evolution
Ripple-to mountain range-scale landforms evolve under predictable internal and external forces that are modulated by the physical and chemical properties of the rock. The purpose of this course is to provide a thorough examination of the development of landscapes by tectonic and surficial processes involving weathering, mass wasting, streams, and glaciers. The concepts of equilibria, climate and vegetation change, and rock character are recurring themes throughout the course. Dating and thermochronology methods are discussed in the context of rates of landscape change. Early classic viewpoints of landform development are contrasted with the latest numerical simulations of landscape evolution. The labs are mostly field-oriented with emphasis on Quaternary stratigraphy, describing and interpreting soils, local geomorphology, and geomorphometrics.
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: ERTH 1080 and one other 1st year ERTH course; 1090 recommended. Must be a 4th year Science student familiar with excel, or with instructor’s permission.
CROSS-LISTING: ERTH 4440.03

GEOG 4450.03: Introduction to Landscape Simulation.
We examine different approaches to numerical modelling of earth-surface processes such as erosion and landslides, melting permafrost, and braided rivers. Using class and/or individual projects as examples, the selection of variables, sensitivity testing, and methods for testing models against nature are discussed. We use Matlab; programming experience is useful but not essential.
FORMAT: Lecture 3 hours, lab
PREREQUISITE: ERTH 3440.03, MATH 1010 or 1400, PHYC 1280.03/1290.03x/y and three courses at the 3000-level in the physical sciences (chemistry, earth science, physics) or with consent of instructor.
CROSS-LISTING: ERTH 4450

GEOG 4520.03: GIS Applications to Environmental and Geological Sciences.
Note: This class is not offered every year. Please consult department in the spring for further information.
Geographic information systems (GIS) provide a rich set of new tools to the geologist and environmental scientist, not only to solve conventional problems, but also to explore questions not readily answered by other means. This class builds on the fundamentals of GIS taught in ERTH 3500.03 to explore analytical tools that aid in decision-making processes encountered in mineral exploration, hydrogeology, site selection, environmental assessment, and global change analysis. The class concentrates on case studies and problem solving, including those requiring multi-criteria and multi-objective decision making processes.
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: GEOG 3500.03, ENVS 3500, ERTH 3500.03; ERTH 5600, or SCIE 5600.03; or consent of instructor.
CROSS-LISTING: ERTH 4520.03

GEOG 4530.03: Environmental Remote Sensing.
The goal of this class is to introduce students to the role of remote sensing as a technique to provide environmental and geologic information. Particular emphasis will be placed on examining the potential and limitations of remote sensing methods and data in this context. The lectures discuss the fundamentals of remote sensing with an emphasis on multi-spectral satellite systems. In the lab, students use computerized techniques of digital image enhancement and thematic information extraction to process images derived from optical, radar, and hyperspectral remote-sensing systems. The integration of remote-sensing information with GIS (Geographic Information Systems) is stressed in both the labs and lectures.
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: ERTH 3500.03, ENVS 3500.03, ERTH 5600.03 or SCIE 5600.03 or GEOG 3500.03
CROSS-LISTING: ERTH 4530.03
German

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar.

The following programs are normally followed, other possibilities do exist. Students considering a degree in German are advised to consult with the undergraduate advisor of the Department.

Applications for Honours Programs should be discussed with a departmental advisor at an early stage. Late applications can also be accommodated.

A. BA with Honours in German

Beyond Beginner-level German, the Honours program requires nine additional credits in German Language, Literature and Thought at or above the 2000 level, including at least two courses in German Literature or Thought at the 3000 level or higher. It is recommended that at least four courses be completed in the last two years of the program. At the end of the program, students take an oral Honours Exam.

Honours students are strongly advised to complete some coursework in Germany, e.g., through the Canadian Year in Freiburg Program. Consult with the undergraduate advisor.

B. BA with Combined Honours

To take an Honours degree combining German with another subject, a student must consult with the academic advisors of both departments to arrange the specifics of the program. In general, a combination of 11 - 14 intermediate and advanced credits in the two subjects is required. If students intend to take the German Honours exam, they need a minimum of six credits in German, including courses in Literature and Thought, if the Honours thesis or exam is completed in the other department, a minimum of five intermediate and advanced credits in German is required.

C. BA (20 credit) Major in German

For a BA with Major in German, at least six (and up to nine) credits beyond the 1000 level must be completed, at least three of these credits must be at the 3000 level or higher. Two credits must be in courses dealing with language or thought.

D. BA (20 credit) Double Major in German

A BA with a Double Major in German and another subject requires a combination of 10 - 14 intermediate and advanced credits in the two subjects. Of these five to nine can be in German, and at least two must be at the 3000 level or higher. Two credits must be in courses dealing with literature or thought.

E. BA (15 credit) Minor in German

See requirements for minor in the College of Arts and Science section of this calendar (page 120).

I. Introduction

German, the most widely used language in Europe, is spoken by approximately 100 million people as their native tongue in Austria, Germany, Switzerland, Italy, Belgium, and some parts of Eastern Europe. The cultural, economic and scientific role of the German-speaking countries makes the knowledge of German indispensable to the study of most academic disciplines. The number of publications in the German language is second only to the number published in English.

The departmental program "German Studies" is the investigation of German culture and its place in the formation of the modern world. The program concentrates on significant aspects of the cultural traditions of the German-speaking countries. From Luther to Nietzsche, Freud, and Marx, German writers have moved people and nations to change the class of the world. The literary and intellectual development of Germany culminated around 1800 in the epoch of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Lessing, Herder, Hegel, Goethe, Schiller) founded their writings on a thorough knowledge of the cultural tradition of Classicism. The authors of this epoch (Les...
III. Course Descriptions

NOTE: All courses are offered every year. Please consult the current timetable to determine this year’s course offerings.

PLEASE NOTE:
- GERM 1010X/Y.06 is to be taken by students with no previous knowledge of German.
- GERM 1020X/Y.06 is to be taken by students with no previous knowledge of German.
- GERM 1030X/Y.06 is to be taken by students with no previous knowledge of German.
- GERM 1060X/Y.06 is to be taken by students with no previous knowledge of German.
- Students who have completed high school German will normally take GERM 2000X/Y.06.
- Students who have completed high school German will normally take GERM 2060X/Y.06. Intermediate German

All students with previous knowledge of German should see the Undergraduate Advisor.

Intermediate Courses

Intermediate courses are based on GERM 1010X/Y.06, 1060X/Y.06, high school German Grade 10, 11, 12 or an equivalent basic knowledge. A combination of GERM 2000X/Y.06 and GERM 2060X/Y.06 serves as an accelerated Intermediate German course and is designed for students who want to make rapid progress in the language.

Unless noted otherwise, all upper-year courses are taught in German with German texts.

GERM 1001X/Y.06: German: A Practical Course for Beginners.

This course provides the linguistic and cultural background needed to interact successfully with German speakers. The course replaces traditional grammar instruction with practical exercises reflecting the basics of communication in domestic and academic life as well as in business and tourism. This course combines a predominantly oral method based on conversation and discussion with written work. For a more traditional approach, see GERM 1010X/Y.06 or GERM 1060X/Y.06.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Classroom instruction/language lab and oral classes

GERM 1010X/Y.06: German for Beginners.

GERM 1010X/Y.06 is a seminar course for beginners only, and no previous knowledge is required. Its equivalent is two years of German in high school with a final mark of 75% or better. The course emphasizes the spoken language, and provides the student with a thorough knowledge of basic grammar. Conversational materials are a required part of the course.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar

GERM 1020X/Y.06: German Fiction in Novel and Film.

This course satisfies the university’s guidelines for the Writing Requirement. It examines the conceptual transition from the printed word to the screen; classic German novels and short stories are to be read and compared with their film versions. Works by Kleist, Fontane, Kafka, Thomas Mann, Heinrich Mann, Bill and Huldtke will be included on the reading list. All texts will be read in English translation. Some of the best-known and most innovative cinematic works will be shown and discussed. Directors will include Fassbinder, Herzog, Schlöndorff, Wenders, von Trotta and Visconti. All German language films will either be “dubbed” into English or provided with English subtitles.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: at Writing Requirement Seminar

GERM 1021X/Y.06: German Fiction in Novel & Film.

Students enrolled in GERM 1021 attend lectures along with those in GERM 1021. However, as they do not need a writing course, they are not required to complete all 8 assignments. Instead, they attend a separate tutorial and submit fewer, more detailed and fully researched essays.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

EXCLUSION: GERM 1020X/Y.06

GERM 1060X/Y.06: German for Reading.

In this course, students acquire a solid foundation for comprehending and translating texts in the humanities and sciences. No previous knowledge of German is required. The course is taught in English. For purposes of admission to advanced courses in German it is equivalent to GERM 1010X/Y.06. This course satisfies the Bachelor of Arts Language Requirement. The combination of GERM 1010X/Y.06 and 2060X/Y.06 is recommended for students who desire rapid progress in the German language.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar

GERM 1080X/Y.06: German Folk and Fairy Tales.

Beginning with the great Germanic epic of the Nibelungen, and finishing with the famous collection of fairy tales by the Brothers Grimm, this course aims to familiarize students with the most significant Germanic myths and tales. Their origins and aspects of their historical, political, social and literary importance will be discussed, through readings presenting a wide variety of critical approaches. The course encourages an interest in narrative style - in the epic, the legend and the fairy tale as literary forms. The history and essential qualities of these forms will be investigated; students will develop a greater awareness of the role and influence which the imagery of these forms has had (and continues to have) in the visual arts and music, in advertising and film, in poetry and literature. The readings for this course are in English.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Writing Requirement Seminar

GERM 2000X/Y.06: Intermediate German.

The main aim of this course is to develop a certain degree of speaking fluency as well as to improve reading and writing skills. Small conversation classes once a week as an aid to speaking fluency are offered.

NOTE: Students taking this course must register in both X and Y in consecutive terms; credit can be given only if both are completed consecutively.

FORMAT: Seminar

GERM 2010X/Y.06: Exercises in Translation and Composition.

English and German texts from various periods and of different types will be translated. These translations lead to the discussion of specific difficulties of grammar and construction. Students must prepare translations or compositions for each class.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar

GERM 2020X/Y.06: Exercises in Translation and Composition.

English and German texts from various periods and of different types will be translated. These translations lead to the discussion of specific difficulties of grammar and construction, word choice and style. Students must prepare translations or compositions for each class.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar

GERM 2021.03: Translation & Composition I.

English and German texts from various periods and of different types will be translated. These translations lead to the discussion of specific difficulties of grammar and construction, word choice and style. Students must prepare translations or compositions for each class.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar

GERM 2022.03: Translation & Composition II.

English and German texts from various periods and of different types will be translated. These translations lead to the discussion of specific difficulties of grammar and construction, word choice and style. Students must prepare translations or compositions for each class.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar
the Hundred Years War, and find settings in medieval Switzerland and France, as Friedrich Schiller's five historical dramas range over Early Modern Europe from

GERM 2040.03: Monsters and Madness: 20th Century German Film.

This course provides an introduction to German culture through the medium of film. Both the classical early period and the contemporary German film will be discussed. No knowledge of the German language is necessary; all films are subtitled and all discussion is in English.

FORMA T: Seminar

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

GERM 2050.03: German Reading I.

This is a seminar specifically intended for students who do not fit into our normal program offerings. Please consult departmental advisor.

GERM 2051.03: German Reading II.

This is a seminar specifically intended for students who do not fit into our normal program offerings. Please consult departmental advisor.

GERM 2060.03: German for Business, Economics and Tourism I.

This course introduces students to the specialized vocabulary used in business and economics. It also aims to familiarize the students with all aspects of the German economy and business world.

FORMA T: Seminar

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

GERM 2061.03: German for Business, Economics and Tourism II.

This course introduces students to the specialized vocabulary used in business and economics. It also aims to familiarize the students with all aspects of the German economy and business world.

FORMA T: Seminar

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

GERM 2090.03: Tanks and Texts: Soldiers' Cinema.

Perspectives on the Two World Wars in German

This course examines the two World Wars from a German perspective. Emphasis is put on autobiographical accounts of soldiers' experiences. Language of instruction and readings will be English. The films are subtitled.

FORMA T: Lecture/discussions

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

GERM 2150X/Y.06: Goethe's Faust.

A close reading of Goethe's Faust, comparing the German original and an English translation, will give rise to questions about translation techniques, the theory of drama and the reduplication of a legend. While Goethe's masterpiece stands at the centre, other German versions of the Faust legend will also be discussed in detail. Assignments will involve research into later echoes of the Faust legend as well. The language of instruction is English but the texts are in German.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

GERM 2200X/Y.06: Introduction to German Literature.

A study of the leading role that German literature has played in the development of the modern novel, the short story, and the essay. The course is devoted to the study of various literary movements spanning the entire range of modern German literature. 

GERM 2280.3: Friedrich Schiller's Historical Drama.

Friedrich Schiller's five historical dramas range over Early Modern Europe from the Hundred Years War, and find settings in medieval Switzerland and France, as well as Counter-Reformation Spain and Elizabethan England. These five plays will be analyzed according to lyrical, theoretical, historical and aesthetic criteria.

FORMA T: Lecture/discussions

CROSS-LISTING: EMSP 2280

GERM 2290.3: German Romanticism: from Goethe to Hegel.

German feeling and political liberation are enhanced by attention to classical antiquity and modern folklore. Apparently a reaction against the modern, from Goethe to Hegel, Romanticism manages to eclipse almost everything else and define some six decades of German philosophy and literature in the writings of Herder, Goethe, Schiller, Novalis, A.W. and Friedrich Schlegel, Eschenhöfer, Hölderlin, Schelling, Hegel, and Nietzsche.

FORMA T: Lecture/discussions

CROSS-LISTING: EMSP 2290

GERM 2400X/Y.06: German Art and Literature.

This course gives an introduction to modern German Art and Literature. Special emphasis is on the interactions between art and literature, particularly the themes and styles shared by visual and literary expressions during the various epochs of modernity. The language of instruction is German and English, as needed. The texts are in German.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

GERM 2450X/Y.06: Kant and the History of German Idealism.

This is a study of major thinkers, with emphasis on Hegel, Leibniz, Herder, Hamann, Kant and Schiller. This course is taught in English using English translations.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

GERM 2500.03: In Pursuit of Freedom from Luther to Nietzsche I.

This is a study of major thinkers, with emphasis on Luther, Leibniz, Herder, Hamann, Kant and Schiller. This course is taught in English using English translations.

GERM 2515.03: In Pursuit of Freedom from Luther to Nietzsche II.

This is a study of major thinkers, with emphasis on Hegel, Schopenhauer and Nietzsche. This course is taught in English using English translations.

GERM 2600.03: 'Freiheit', Freedom in German Literature and Thought I.

In contrast to other European literatures of the 18th century with their utilitarian and moralistic aims, the German Sturm und Drang movement puts the individual into the centre. A social society demands a new conception of man (“Mensch”) liberated from God and the gods. As a consequence, the traditional view of man inherited from Aristotelian poetics is replaced by characters who shape their own destiny. A new myth of a defiant Prometheus is created by Goethe. German idealism formulates a new theory of freedom which was summed up by Kant in his categorical imperative. Goethe's lyriptic illustrates the humanism of the

GERM 2800X/Y.06: German for Business, Economics and Tourism.

This course introduces students to the specialized vocabulary used in business and economics. It also aims to familiarize the students with all aspects of the German economy and business world.

FORMA T: Seminar

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

GERM 2820.03: German as a Second Language.

GERM 2821.03: German as a Second Language.

GERM 2822.03: German as a Second Language.
GERM 2601.03: 'Freiheit'. Freedom in German Literature and Thought II. 19th and 20th century.
Goethe's 'Divan' opens our discussion. Goethe follows the Persian poet Hafez to the Orient. But in the limit realm of the imagination which enables free to ignore the reality of the Napoleonic wars. Goethe's avoidance of reality became the role model for the Symbolist movement. The German Romantics placed a writer's imaginative capacity ('Träumerei') and subjectivity ('Welt' and 'Innen') rather than any concerns about objective reality. New forces, like chance ('Zufall'), counteract many personalized freedoms, as is shown in the works of Heinrich von Kleist. The dependence on circumstances, social structures and natural laws becomes the great topic of Realism and Naturalism. The human being without hope, faith or the chance of salvation is manifested in Büchner's works. Finally, the existential crisis of modern man finds its most representative expression in the works of Franz Kafka.
Tests by Goethe, Gautier, Kleist, Büchner, Kafka and others will be read in the original. English translations will be provided. Language instruction: English. This course should appeal to students interested in the history of ideas. Attendance of Part I is not a prerequisite.

FORMAT: Lecture

GERM 2650X/Y.06: Modern German Philosophy. This course provides a survey of the German philosophical tradition from the enlightenment to the present. Students will gain a broad overview of the German intellectual history through focused readings of the theoretical texts. This course is taught in English using English translations.

FORMAT: Lecture/seminar
CROSS-LISTING: PHIL 2650.06

GERM 2651.03: Modern German Philosophy I. This course looks at the history of German philosophy from the Enlightenment to the End of German Idealism. Part one examines the early history of German philosophy, focusing on German Idealism. Students will gain a broad overview of German intellectual history through focused readings of key texts. The goal is to understand how the ideas formed in this tradition contributed to both the core philosophic disciplines (such as metaphysics, epistemology and moral philosophy) as well as other fields (like history, aesthetics, psychology, and political thought). Our focus will be on the construction of the free autonomous individual – the basis for our understanding of democratic institutions.

FORMAT: Lecture/seminar
CROSS-LISTING: PHIL 2651.03
EXCLUSION: GERM 2650X/Y.06

GERM 2652.03: Modern German Philosophy II. This course looks at the history of German philosophy from German Idealism onward. In particular, the focus will be on the radical-philosophical movements of the 19th and 20th centuries. Students will gain a broad overview of German intellectual history through focused readings of key texts. The goal is to understand how the ideas formed in this tradition contributed to both the core philosophic disciplines (such as metaphysics, epistemology and moral philosophy) as well as other fields (like history, aesthetics, psychology, and political thought). The focus will be on how critiques of the free autonomous individual—constructed in the context of German Idealism—offset the political institutions of the 19th and 20th centuries.

FORMAT: Lecture/seminar
CROSS-LISTING: PHIL 2652.03
EXCLUSION: GERM 2650X/Y.06
CO-REQUISITE: PHIL 2651.03

GERM 3000X/Y.06: Advanced German. Translations, readings, essays and discussions will promote fluency in the language on the advanced level.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar
PREREQUISITE: GERM 2000X/Y.06 or equivalent

GERM 3001.03: Advanced Spoken German I. This course aims to develop the oral proficiency and fluency of advanced students. We will improve pronunciation, practice discussion skills and idiomatic expressions, build vocabulary, memorize set phrases and practice listening comprehension. Audio-visual materials will be used. Students' active participation is essential in this course (Non-native speakers only).

FORMAT: Seminar
PREREQUISITE: GERM 2000X/Y.06 or equivalent

GERM 3002.03: Advanced Spoken German II. This course builds on GERM 3001. In the first half of the course, we will continue to work on improving pronunciation and intonation, to expand vocabulary and practise sentence and conversational structures. We will especially focus on increasing fluency and confidence in conversational interaction. Students' active participation is essential in this course (Non-native speakers only).

FORMAT: Seminar
PREREQUISITE: GERM 2000X/Y.06 or equivalent

GERM 3010.03: Advanced Translation I: German - English. German texts of various kinds are used to deal with techniques and problems of translating from German into English. The course includes discussions of translation theories, elements of style and questions of authenticity and textual redundancy.

FORMAT: Seminar
PREREQUISITE: GERM 2000X/Y.06 or equivalent

GERM 3011.03: Advanced Translation II: English - German. English texts of various kinds are used to deal with the techniques and problems of translating from English into German. The course includes discussions of translation theories, elements of style and questions of authenticity and textual redundancy.

FORMAT: Seminar
PREREQUISITE: GERM 2000X/Y.06 or equivalent

GERM 3030X/Y.06: German Reading. English texts of various kinds are used to deal with the techniques and problems of translating from English into German. The course includes discussions of translation theories, elements of style and questions of authenticity and textual redundancy.

FORMAT: Seminar
PREREQUISITE: GERM 2000X/Y.06 or equivalent

GERM 3100X/Y.06: German Literature and Thought from Reformation to Enlightenment. A study of German literature between the 16th and 18th centuries as a direct reflection of the important religious, social and philosophical developments after the Reformation and during Absolutism.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar
PREREQUISITE: Any 2000-level course

GERM 3102.03: German Reading IV. This is a seminar at the advanced level which offers readings outside our normal program offerings. Please consult departmental advisor.

FORMAT: Seminar
PREREQUISITE: Any 2000-level course

GERM 3110X/Y.06: German Literature and Thought from Reformation to Enlightenment. A study of German literature between the 16th and 18th centuries as a direct reflection of the important religious, social and philosophical developments after the Reformation and during Absolutism.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar
PREREQUISITE: Combined GERM 2200X/Y.06, GERM 2400X/Y.06 or other German literature course at the 2000-level

GERM 3120.03: Origins of Comparative Religion from Hegel to Nietzsche. Comparative Religion was an invention of lectures at the University of Berlin from 1837. Religious doctrines and ideals were re-cast according to the Chronology of German Ideologies. The beginning is Hegel's 1827 Lectures on Religion, the criticisms of Schopenhauer, D.F. Strauss, Feuerbach and Kierkegaard shall lead us to Nietzsche's, "Anti-Christ."

FORMAT: Lecture/seminar tutorial
CROSS-LISTING: RELS 3120.03

GERM 3150X/Y.06: Goethe and the Enlightenment. A study of German literature and thought of the time which preceded and witnessed the great revolutions of the 18th century.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar
Held together with GERM 5152X/Y.06
PREREQUISITE: GERM 2200X/Y.06, GERM 2400X/Y.06 or other German literature course at the 2000-level
GERM 3200X/Y.06: Goethe and Romanticism.  
A study of Goethe, Novalis and F. Schlegel. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMAT: Seminar. Held together with GERM 5500X/Y.06.

GERM 3250X/Y.06: Modern German Literature.  
Modern authors as witnesses of the philosophical and social changes of our century: a study of selected prose texts of Hugo von Hofmannsthal, Franz Kafka, Arthur Schnitzler and Thomas Mann. The language of instruction is English and German, as needed; the texts are in German. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMAT: Seminar. Held together with GERM 5300X/Y.06.

GERM 3200X/Y.06: Germany and the Environment.  
In this course we will study the ever-changing ideas of nature and the environment in German culture from the 18th century to today. The seminar will be conducted in English. All readings will be in English.

GERM 3300X/Y.06: History of German Poetry.  
The poems we shall read represent the stations of the modern mind. We shall begin with the 17th Century; we shall end with the 20th Century. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMAT: Seminar. Held together with GERM 5300X/Y.06.

GERM 3400X/Y.06: Germany and Europe: The Cultural Union.  
Modern German literature is shaped by the orient (Les mille et une nuits 1704-1775), by Winckelmann’s discovery of Greek sculpture and the reception of Shakespeare and Milton in the mid 18th Century. The Sherm and Drang movement used the works of Shakespeare as its inspiration to create a radical anti-Aristotelian concept of drama and of man. Writings of this period iznated an “open form” of drama which foreshadowed the plays of Büchner and Brecht. The new concept of man spread throughout Europe, becoming the basis for European Romanticism. German Romanticism, however, is quite different from its European counterparts; its influence is felt by European Symbolists like Baudelaire and Mallarme. This course aims to study the interconnectedness of the European national arts and literatures. A reading knowledge of German, French and English is required. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMAT: Seminar. Held together with GERM 5400X/Y.06.

GERM 3450.03: Confronting Fascism.  
This course focuses on German writers, artists, filmmakers, and intellectuals whose work impacted and was impacted by the rise of fascism in the 20th century. Works by J.M.R. Lenz, J.W. Goethe, H.V. Kienz, G. Büchner, G. Hauptmann, E. Toller, B. Brecht and R. Breitk will be discussed. The notion of Freedom (Freiheit) and its apparent impossibility in the ninetenth and twentieth century is central. The texts are read in English translation with the German originals as back-up. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMAT: Seminar. Held together with GERM 5600X/Y.06.

GERM 3750X/Y.06: Modern German Drama.  
This is an intensive research seminar dealing with selected topics to be announced. The seminar will be conducted in English. All readings will be in English. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMAT: Seminar. Held together with GERM 2200X/Y.06 or GERM 2400X/Y.06 and another literature course.

GERM 3850.03: The End of the World: The Apocalypse in German Thought.  
The world, death and destruction that define European history in the 20th century can only begin to explain the obsession with the apocalypse in contemporary German thought. In this seminar we will study the secular appropriation of apocalyptic imagery from the Jewish-Christian tradition. FORMAT: Lecture/discussion.

GERM 4100X/Y.06: Aesthetic Theory.  
An historical study of the development of aesthetic theory. Hegel’s “Aesthetik”, Heidegger’s “Ursprungs des Kunstwerkes” and Gadamer’s “Wahrheit und Method” will be studied. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMAT: Seminar. Held together with GERM 5600X/Y.06.

GERM 4250X/Y.06: Studies in German Idealism.  
An historical study of modern German Philosophy year to year, but is always related to some aspect of Idealism. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMAT: Seminar. Held together with GERM 5600X/Y.06.

GERM 4350.03: Germany and the Environment.  
In this course we will study the ever-changing ideas of nature and the environment in German culture from the 18th century to today. The seminar will be conducted in English. All readings will be in English.

GERM 4450.03: Special Topics Class I.  
This is an intensive research seminar dealing with selected topics to be announced.

GERM 4501.03: Special Topics Class II.  
This is an intensive research seminar dealing with selected topics to be announced.

GERM 4500X/Y.06: Special Topics Class.  
This is an intensive research seminar dealing with selected topics to be announced. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
Health Studies

Contact Person: Dr. Katherine Forthlook
Location: Department of Political Sciences
Faculty of Arts and Social Sciences
Telephone: (902) 494-4011

I. Minor in Health Studies
See Minors in the College of Arts and Social Sciences section of this calendar (Page 128).

II. Curriculum

A. Required Courses
Students must complete four full-credit or eight half-credit courses (24 credit hours) above the 1000 level from the list of approved elective courses noted below. A minimum of “B-” in these approved elective courses above the 1000 level earns credit toward the Minor.

B. Elective Requirements
Four full courses or equivalent from the approved list below, all above the 1000 level, and two full courses above the 2000 level. These four courses (or equivalents) must include courses from at least two of the following disciplines: Humanities, Social Sciences, Physical/Life Sciences, Engineering, Health Professions. Not all of these courses are offered every year. Some courses require prerequisites.

- ENGL 2030.03: Literature, Health and Healing
- HIST 3108.03: Topics in the Social and Cultural History of England: Madness and Marginality
- INTD 3115.03: Global Health: Challenges of Global Health Equity in the 21st Century
- PHIL 2502.03: Ethics and Health Care: Social Policy
- POLI 2255.03: Drugs & Drug Education
- PSYO 1011.03, 1012.03, 1021.03 or 1022.03: Introduction to Psychology
- BIOL 4001.03: Environmental Impact Assessment
- BIOL 4010.03: Political Ecology
- CHEM 1410.03: Intro to Chemistry Related to Human Health
- ECON 2231.03: Health Economics
- ENVK 2074.06: Environmental & Ecosystem Health
- PSYO 2000.03: Social Psychology
- PSYO 2009.03: Developmental Psychology
- PSYO 2170.03: Homesickness and Behaviour
- PSYO 2220.03: Alimentary Behaviour
- PSYO 3129.03: Childhood Psychopathology
- PSYO 3160.03: Psychosomatic Medicine
- PSYO 3220.03: Clinical Psychology
- PSYO 3234.03: Forensic Psychology
- PSYO 3223.03: Health Psychology
- PSYO 3237.03: Drugs and Behaviour
- PSYO 3260.03: Biological Rhythms
- PSYO 3264.03: The Science of Sleep
- PSYO 3280.03: Personality
- STAT 1060.03: Intro to Stats for Science and Health Sciences (cross-listed with MA TH 1060.03)

University of King’s College

- CTMP 2301.03: Pain
- CTMP 2303.03: Reflections on Death
- CTMP 3210.03: Intersecting Bodies, Selves, and Environments
- CTMP 3316.03: Hidden Worlds: Microscopy in Early Modern Europe (cross-listed with HISTC 3316.03)
- HISTC 2380.06: Introduction to the History of Science (cross-listed with HIST 2380.06 and BIOL 3300.06)
- HISTC 2382.03: The Beginnings of Western Medicine: Birth of the Body
- HISTC 2386.03: Bio-Politics

Note: All University of King’s College courses are open to Dalhousie students.

Faculty of Engineering

- FOSC 3010.03: Food Chemistry
- FOSC 3020.03: Food Analysis
- FOSC 3070.03: Food Processing
- FOSC 3090.03: Food Microbiology
- FOSC 4001.03: Food Product Development

Faculty of Health Professions

- DISM 3010.03: Intro to Occupational Disability Management
- DISM 3030.03: Undergraduate Occupational Injury and Disability
- DAHP 1000.03: Introduction to Health Promotion
- DAHP 1088.03: Personal Health
- DAHP 2009.03: Human Growth and Development
- DAHP 3000.03: Community Development
- HESA 4001.03: Canadian Health Care Delivery System
- HESA 4001.03: Management Roles and Competencies
- HESA 4002.03: Health Human Resource Management
- HESA 4004.03: Healthcare Planning
- HESA 4005.03: Health Care Financial Management
- HISTL 4004.03: Health Law for Non-Lawyers
- HPRO 1155.03: Introduction to Health Promotion
- HPRO 2104.03: Health Promotion Theory
- HPRO 3120.03: Health Promotion Policy
- HPRO 2250.03: Human Nutrition
- HPRO 2255.03: Drugs & Drug Education
- HPRO 2361.03: Program Planning
- HPRO 3325.03: Mental Health Promotion
- HPRO 3555.03: Introduction to Disease Prevention
- HPRO 3645.03: Epidemiological Approach to Disease
- HPRO 3651.03: Injury Prevention and Safety Education
- HPRO 3660.03: Multicultural Health Promotion Research & Policy
- HPRO 3710.03: International Health Promotion Research & Policy
- HPRO 3797.03: Community Health Promotion Strategies
- HPRO 4565.03: Health: A Biopsychosocial Approach
- HPRO 4442.03: Human Sciences
- HPRO 4442.03: Environmental Health

Faculty of Science
• HPRO 4450.03: Comprehensive School Health Promotion
• HSCE 3003.03: Culture, Diversity, and Health
• IPHE 2201.03: Introduction to Aboriginal People’s Health and Healing
• KINE 3200.03: Sociocultural Issues in Physical Activity
• LEIS 2136.03: Leisure Theory
• LEIS 2384.03: Leisure and Individuals with Disabilities
• LEIS 3296.03: Leadership and Group Dynamics
• LEIS 3360.03: Analysis of Leisure Service Delivery Settings
• LEIS 3402.03: Counselling for Health and Well-being
• OCCU 2000.03: Occupation and Daily Life

Faculty of Computer Science
• CSCI 1204.03: Computer Science I for Health Professionals

* Courses marked with an asterisk are at the 1000 level and will not count towards the Minor. Students may nevertheless wish to consider taking courses from this group because of their health content.

I. Introduction
Just as people need to know who they are and how they arrived where they are, groups, courses, states and nations need a sense of their own past as part of their culture.
The academic study of history, therefore, is concerned to discover as much as possible of the reality of the past and to interpret human behaviour in it changes through time. It is a unique subject, scientific in the way it uses evidence, but still an art because the reconstruction of the past requires a disciplined imagination and an aesthetic rhetoric for the communication of meaning.

The contemporary world is one of intense specialization, in which the varieties of human knowledge have increased well beyond the capacity of any individual to command them all. These developments have reinforced the role of history as the foundation of a person’s education, because history can never drown itself in itself to exclude any branch of human knowledge, although individual historians will want to select that portion of it especially relevant for them.

History’s field of study will always be the entirety of the human experience.

The subject of history does not have a monolithic body of knowledge. Historical understanding is a matter of interpretation, of offering explanations for events and movements which are subject to constant revision by scholars. Arguments, suspicion and controversy are thus the very stuff of history. The history student does not merely acquire a particular mass of information, but learns to think independently.

Especially in the 3000 and 4000 level courses, students gain more than sophistication about substantive areas of history. They also develop transferrable skills for oral and written communication, for presentations of findings to groups, for group and independent research, for computer literacy in the human sciences, for research skills in primary and secondary materials, and for the application of foreign languages.

A degree in history provides an appropriate background for students planning to enter professional careers in fields such as law, education and journalism, as well as those interested in pursuing graduate study in history or related social science and humanities disciplines.

II. Degree Programs

All BA programs are governed by the general requirements of the College of Arts and Science for degrees, as set out in the University Calendar. See the Degree Requirements section for complete details, particularly with respect to Distribution Requirements, the Writing Course, the Language Course, and Arts and Science Electives. Before registering for the second year, each student in the College of Arts and Science must declare a subject of concentration. Once a student has declared History as the subject of concentration, then the following degree programs apply.

Courses in the History Department are grouped numerically in several ways: by geographical, chronological, subject, and other areas: for example, Canadian, American, British, African, Medieval and Early Modern European, Modern European, Science and Technology, etc. Students are strongly encouraged to select a distribution of courses from these areas in order to experience the variety and richness of history.

Students who wish to build up a greater specialization in history than the minimum requirements outlined below may do so by taking courses of an historical nature given by the Departments of Classics, Economics, Music, Philosophy, Political Science, Spanish and Latin American Studies, Theatre, etc.

History students interested in obtaining an Emphasis in Canadian Studies along with their Major or Minor in History should consult the Canadian Studies calendar entry for information on requirements and for a list of History courses approved with Canadian Studies.

Students who wish to concentrate in a particular area of history should acquire the appropriate language skills, especially if they intend to pursue graduate study in it. The following outline presents the MINIMUM departmental requirements for each program and should be read in conjunction with the general requirements of the Faculty.

Students planning to take a minimum of five full credits in History (above the 1000 level) are required to choose at least one half credit course above the 1000 level from at least four categories (A, B, C, and D). See history.department for course selection.

(Note: This requirement applies to students who start their BA degree in Fall 2014 and after.)

A. BA (20 credit) Honours in History

The Honours degree is intended for students who plan to proceed to graduate work and for others who wish to enjoy the experience of an intensive research project, the Honours essay. Students must complete the requirements for the BA with a major in History and fulfill the following additional requirements:

• Honours students must take at least nine but not more than 11 full credits in History beyond the 1000 level.
• Honours students must take HIST 4991X/Y (the Honours essay). HIST 4996X/Y (The Varieties of History) and at least one half credit 4000 level seminar in History.
• Applicants normally should have achieved an excellent Grade Point Average of at least 3.0 in their History courses above the 1000 level to be considered for admission.
• A grade of B- or better is required on nine full History credits
• A grade of B- or better is required on the honours essay. NOTE: Applications for Honours in History are not considered by the Department until the winter term of the student’s third year. Please enquire at the Department for the relevant deadline.

B. BA (20 credit) Combined Honours including History

Besides the general requirements for all BA programs, students must meet the Faculty degree requirements for Combined Honours (20 credits). Students must take 11-14 full credits in two subjects beyond the 1000 level, with no more than eight nor fewer than five credits in either of them. Students must complete two full credits at the 3000-4000 level in both Honours subjects. A grade of B- or better is required in at least four full History credits.

C. BA (20 credit) Major in History

The 20 credit Major requires more advanced training in History than does the three year degree. Besides the general degree requirements for all BA degrees, students majoring in History are required to take at least ten but not more than nine full History credits beyond the 1000 level.

• At least three of these History credits must be above the 2000 level.
• Within the last 15 full credits, students must take at least one credit in each of two subjects other than History.
• At least 4 full History credits in History must take at least one half credit 4000 level seminar in History.

D. BA (20 credit) Double Major including History

Besides the general requirements for all BA programs, students must meet the Faculty degree requirements for the BA with Double Major, which include 10-14 full credits in the major subject beyond the 1000 level, with no more than eight nor fewer than five in either subject. Students must complete at least two full credits above the 2000 level in each major subject. Within the last 15 full credits, students must complete one full credit in a single subject other than the two major subjects. If History is the primary subject for the Double Major, students are required to take at least one full credit 4000 level seminar in History.

E. BA (15 credit) Minor in History

See requirements for minor in the College of Arts and Science section of this calendar (page 128)

F. Minor in History

See Minor in the College of Arts and Science section of this calendar (page 128).

III. Types of Courses

1000 level courses take broad geographic perspectives over long periods of history to provide a background to many subsequent History courses. 2000 level courses typically deal with countries and transnational regions over at least a couple of centuries. 1000 level courses typically use textbooks for readings and assume no prior university-equivalent preparation; second-year courses typically assign academic books and articles and assume that students have the skills typically developed in the first year of university study. At the 1000 and 2000 levels, courses are lecture format, three hours per week, with tutorials featured in some courses. 2000 level courses begin more advanced study in an area of History as a major or minor.

3000 and 4000 level courses provide opportunities for the intensive pursuit of interests developed in previous courses. The relatively small size of 3000 level courses (usually 30 students) allows intensive discussion of demanding primary
materials and secondary publications, as well as students’ presentation of their independent work. 4000 level courses are taught in a seminar format to cultivate students’ independent research skills; undergraduate enrolments are limited to 15 or less; some are cross-listed in graduate courses. These courses are particularly recommended for Honours students and prospective Honours students.

IV. Course Descriptions

NOTE: Not every course is offered every year. Please consult the current timetable to determine which courses are offered this year.

HIST 1004X/Y:06: Introduction to European History.

This course will introduce students to the major themes and events in European history, from the end of the Roman Empire to the fall of Communism in 1990. Since the course will be taught by two course directors (one in each term), the exact topics presented and approach will vary from one year to another.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture;

EXCLUSION: HIST 1003, 1002, 1003, 1005, 06

HIST 1005X/Y:06: Introduction to European History.

This course will introduce students to the major themes and events in European history, from the end of the Roman Empire to the fall of Communism in 1990. Since the course will be taught by two course directors (one in each term), the exact topics presented and approach will vary from one year to another. History 1005 is formally designated as a writing course. Students complete a writing assignment once per month and also participate in weekly small-group discussion sessions, designed to complement lectures.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: At Writing requirement. Lecture/discussion;

EXCLUSION: HIST 1004X/Y. 1003, 1002, 1003

HIST 1006.03: The Idea of the Past and the Making of the Present.

This course examines the influence of ‘the past’ at various moments in history. We will explore how the human past has been used historically in order to shape contemporary action. The course surveys the history of ‘history’, in a sense, considering how notions of the past informed ideas and arguments about the way things should be in the present. It encourages students to think critically about the uses and abuses of historical arguments while providing a general introduction to key events and themes in history. It will also provide students opportunities to develop their writing skills.

FORMAT: Writing requirement. Lecture/discussion.

EXCLUSION: HIST 1004, HIST 1003.


Global history — the study of change over long spans of time and large areas — allows us to examine questions not easily recognized in history conducted on smaller scales. The world order familiar to us — dominated by ‘the West’ and organized by capitalist relations — contains elements both ancient and new. By comparing different cultural zones in historical periods before Europe’s global dominance in the nineteenth century, this course will explore the diverse ways different cultures met the challenges of survival, and how patterns of connection and domination were made and undone. Select themes — including trade, transportation, ecology, and state formation — will be used to highlight pre-modern patterns of connection across the globe.

FORMAT: Writing Requirement. Lecture/tutorial.

EXCLUSION: HIST 1500.

HIST 1502.03: Origins of Modern Global Society.

Global history — the study of change over long spans of time and large areas — allows us to examine questions not easily recognized in history conducted on smaller scales. The world order familiar to us — dominated by ‘the West’ and organized by capitalist relations — contains elements both ancient and new. By comparing different cultural zones in historical periods before Europe’s global dominance in the nineteenth century, this course will explore the diverse ways different cultures met the challenges of survival, and how patterns of connection and domination were made and undone. Select themes — including trade, transportation, ecology, and state formation — will be used to highlight pre-modern patterns of connection across the globe.

FORMAT: Lecture/tutorial 3 hours


Global history — the study of change over long spans of time and large areas — allows us to examine questions not easily recognized in history conducted on smaller scales. The world order familiar to us — dominated by ‘the West’ and organized by capitalist relations — contains elements both ancient and new. By comparing different cultural zones in historical periods before Europe’s global dominance in the nineteenth century, this course will explore the diverse ways different cultures met the challenges of survival, and how patterns of connection and domination were made and undone. Select themes — including trade, transportation, ecology, and state formation — will be used to highlight pre-modern patterns of connection across the globe.

FORMAT: Writing Requirement. Lecture/tutorial.

HIST 1504.03: Origins of Modern Global Society.

This course is a parallel course to HIST 1502, a first-year introduction to the Origins of Modern Global Society and satisfies one-half of the writing requirement component for all Dalhousie undergraduate students (students will need an additional half credit in another approved course to satisfy fully the writing requirement.).

The course introduces students to the major events and developments in modern global history and how they shaped twentieth century societies, especially in the non-Western world. The course will be on colonial encounters and the subsequent developments.

FORMAT: Lecture/tutorial.

HIST 1701.03: History of the Americas: From Pre-Contact to the Revolutionary Era.

This course explores the history of the Americas from Pre-Columbian times to the early nineteenth century. The course considers indigenous people before 1492, conquest and colonization, as well as slavery, religion, gender, war and revolution. This course provides a background for understanding contemporary Canada, the United States, and Latin America.

FORMAT: Lecture.

EXCLUSION: HIST 1862X/Y.06, HIST 1867X/Y.06.

HIST 1702.03: History of the Americas: from the Revolutionary Era to the Present.

This course explores the history of the Americas from the early nineteenth century to the present. It traces the rise of new nation-states as they evolved from colonies to global powers, and the relationship between the global economy and the development of nation-states, and the interplay between nationalism and global, imperialist, capitalist developments, and the resulting conflicts. The course is designed to provide an overview of the region’s history for students who are interested in the study of the Americas.

FORMAT: Lecture.

EXCLUSION: HIST 1862X/Y.06, HIST 1867X/Y.06.

HIST 2001.03: Early Medieval Europe.

An investigation of the period between the fourth and the tenth centuries. Major themes of lectures and tutorials include the mingling and exchange of Roman traditions with the barbarian cultures in the fifth and sixth centuries, the creation of the successor states of Europe following the disintegration of the Carolingian Empire, the development of monasticism, church-state relations, the Gregorian Reform and the Investiture Controversy, the rise of papal government, the twelfth-century Renaissance, peasant life and popular culture. Original sources in translation are used to familiarize students with the medieval world view.

RECOMMENDED: HIST 1004X/Y.06

FORMAT: Lecture/tutorial.

HIST 2002.03: Later Medieval Europe.

A study of the period beginning with the crusades, and ending with the emergence of the early modern European monarchies. After a preliminary introduction to the nature of medieval society at the end of the twelfth century attention is turned to a variety of themes: urban and rural life, social and economic change, the Church and its rivalries, intellectual and cultural developments, art and architecture, international conflict, peasant life, popular culture, the Crusades, and the Hundred Years’ War.

NOTE: Credit can only be given for this course if X and Y are completed in another.

FORMAT: Lecture/tutorial.

EXCLUSION: HIST 1862X/Y.06, HIST 1867X/Y.06.

HIST 1701.03: History of the Americas: From Pre-Contact to the Revolutionary Era.
HIST 2003.03: The Fall of the Roman Republic.
See course description for CLAS 2209.03 in the Classics section of this calendar.

HIST 2005.03: Imperial Russia.
See course description for CLAS 2209.03 in the Classics section of this calendar.

HIST 2006.03: The Atlantic World, 1450-1650: Europe and the Colonialization of the Americas.
The commercial and colonial expansion of Europe into the Americas. Topics of particular interest are the relation of European and indigenous peoples; the ecological consequences of colonization; the use of slave labour, the role of technology, the establishment of settler colonies, the effect of overseas communication on European culture, and the role of colonial expansion in the development of the world economy.
RECOMMENDED: HIST 1004X/Y.06, 1501.03, 1701.03, 1702.03
FORMAT: Lecture/tutorial

The development of the European colonial societies after their initial settlement and the establishment of their staple economies in the sixteenth and seventeenth centuries. The topics of chief interest are the predominance of colonial trade in Europe’s large-scale commerce, the role of the colonies in European conflicts, the renewal of exploration, the development of the colonies’ internal economies, and their revolts against European rule.
RECOMMENDED: HIST 1004X/Y.06, 1501.03, 1701.03, 1702.03, 2006.03
FORMAT: Lecture/discussion

HIST 2012.03: Eighteenth-Century Europe: Politics, Society, and Culture.
The course explores the major political, social, intellectual and artistic developments of eighteenth-century continental Europe. Topics of special interest include: the emergence of the great powers; property, the underprivileged and reform; literacy and education; art and culture; religious observance and beliefs; the Enlightenment; and the crisis of the old order leading to the French Revolution.
RECOMMENDED: HIST 1004X/Y.06
FORMAT: Lecture/discussion
PREREQUISITE: HIST 1004X/Y.06

HIST 2015.03: War and Society in Early Modern Europe, 1550-1750.
The course deals with the presence of war in European society, and how states and societies adapted and transformed under the impact of the desire to achieve victory against an adversary. Among specific topics the course will deal with the transformation of tactics and technology on land and sea; the creation of modern tax systems; problems of supply and recruitment; ideologies of the military function; the creation of standing armies; the impact of hostilities on society.
FORMAT: Lecture/tutorial

HIST 2016.03: The Classical Greek World: Athens, Sparta and a Century of Conflict.
See course description for CLAS 2210.03 in Classics section of this calendar.

HIST 2017.03: The Roman World from Constantine to Theodosius (A.D. 313-395).
See course description for CLAS 2210.03 in Classics section of this calendar.

See course description for CLAS 2211.03 in Classics section of this calendar.

HIST 2019X/Y.06: Early Modern Europe, 1450-1650.
A detailed and comprehensive survey of the principal topics in European history from the Italian Renaissance and the Christian Reformation, to the end of the great conflicts in the mid-seventeenth century. The course will proceed in roughly chronological progression, to examine in turn Italy, Spain and Portugal, France, the Netherlands, Germany and the Empire, the Christian kingdoms of eastern and northern Europe, and the European territories of the Turkic Ottoman Empire. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture/tutorial

HIST 2021.03: Soviet Russia.
Survey of Soviet Russia from 1917 to the present. Topics discussed will include the Revolution of 1917, the Civil War and War Communism, NEP, Collectivization, the Great Purges, WWII, and the Post-Stalin era.
FORMAT: Lecture/tutorial
CROSS-LISTING: RUSN 2021X/Y.06
EXCLUSION: HIST 2020X/Y.06, RUSN 2021X/Y.06

HIST 2022.03: Imperial Russia.
Chronologically covers the imperial period of Russian history, from Peter the Great to the Revolution of 1917.
FORMAT: Lecture/discussion
CROSS-LISTING: RUSN 2022.03
EXCLUSION: HIST 2020X/Y.06, RUSN 2021X/Y.06

HIST 2023.03: Roman Legions and the Barbarians.
See course description for CLAS 2233.03 in the Classics section of this calendar.
FORMAT: Lecture
CROSS-LISTING: CLAS 2233.03

HIST 2032.03: Twentieth Century Germany.
Across two catastrophic world wars and a revolution, as empire, quasi-socialist republic, Cold War outpost, and the showdown for the end of Communism, Germany’s history has embedded in it unparalleled extremes of the “age of extremes” in the twentieth century. The course explores the historical dimensions of these events and their resonance today.
FORMAT: Lecture
EXCLUSION: HIST 2030.06X/Y

HIST 2041.03: France from the Revolution to the Great War.
The course examines the long nineteenth century in France and its interpretations. The themes include the legacy of the French Revolution, social structure and divisions, religion, education, crime and punishment, gender issues, intellectual and artistic developments. No French required.

HIST 2055.03: War and Society since 1945.
This course examines the role of war, the development of military forces, and the changes in the international balance of power since 1945. Topics of discussion will include the Cold War, decolonization, “empire”, military alliances, and the “Third World”; nuclear weapons and deterrence theory; terrorism, guerrilla warfare, and counter-insurgency developments in conventional forces; war in Algeria, Indo-China, Korea and the Middle East.
FORMAT: Lecture

HIST 2060X/Y.06: The Civilization of Baroque Italy.
A descriptive introductory survey of Italy from the late Renaissance to the French Revolution. Lectures and tutorials will feature a broad array of original sources in translation and numerous images. Taught in English.

HIST 2065.03: Soviet Russia.
Survey of Soviet Russia from 1917 to the present. Topics discussed will include the Revolution of 1917, the Civil War and War Communism, NEP, Collectivization, the Great Purges, WWII, and the Post-Stalin era.
FORMAT: Lecture/tutorial
CROSS-LISTING: RUSN 2065.03
EXCLUSION: HIST 2064.06, RUSN 2065.03

HIST 2066.03: Civilization of Baroque Italy.
This is a scaled-down version of 2060X/Y.06, and studies Italy at the time of its greatest influence on Western civilization. The course examines Italy’s politics, its vibrant urban and rural societies, the place of Catholicism in its cultural and intellectual life, and the innovative early modern economy, all before the great crisis of the 1620s. Open to first-year students.
FORMAT: Lecture/tutorial
CROSS-LISTING: ITAL 2066.03
EXCLUSION: HIST 2061.03

HIST 2067.03: Civilization of Baroque Italy.
This is a scaled-down version of 2060X/Y.06, and studies Italy at the time of its greatest influence on Western civilization. The course examines Italy’s politics, its vibrant urban and rural societies, the place of Catholicism in its cultural and intellectual life, and the innovative early modern economy, all before the great crisis of the 1620s. Open to first-year students.
FORMAT: Lecture/tutorial
CROSS-LISTING: ITAL 2067.03
EXCLUSION: HIST 2061.03

HIST 2068.03: Evolving Spain: History, Culture, Society.
Please see the description for SPAN 2100 in the Spanish and Latin American Studies section of the Calendar.
HIST 2074X/Y.06: Introduction to the History of Science.
See course description for HISTC 2200X/Y.06 in the History of Science section of this calendar.
Note: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

HIST 2081X/Y.06: Twentieth-Century Europe in Literature, Art and Film.
A survey of contemporary European history that employs representative works of literature, art and film, as well as traditional published records and monographic accounts to introduce students to major events of the twentieth century, the two world wars, the Russian Revolution, the political systems of Italian Fascism, German Nazism and Soviet Communism, the Holocaust and others.
RECOMMENDED: HIST 1004X/Y.06
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

HIST 2082.03: Death, Sex, and Gold in the Ancient Roman World.
See course description for CLAS 2214.03 in the Classics section of this calendar.

HIST 2083.03: Alexander the Great and the Hellenistic Kings: Transforming the Ancient East and West.
See course description for CLAS 2232.03 in the Classics section of this calendar.

HIST 2084.03: The Fall of Rome: Consuls, Classes, and World Conquest.
See course description for CLAS 2231.03 in the Classics section of this calendar.

HIST 2085.03: The Rise of Rome: Consuls, Classes, and World Conquest.
See course description for CLAS 2231.03 in the Classics section of this calendar.

HIST 2086.03: Twentieth-Century Europe in Literature, Art and Film.
See course description for CLAS 2234.03 in the Classics section of the calendar.

HIST 2087.03: Alexander the Great and the Hellenistic Kings: Transforming the Ancient East and West.
See course description for CLAS 2232.03 in the Classics section of this calendar.

HIST 2088.03: The Rise of Rome: Consuls, Classes, and World Conquest.
See course description for CLAS 2231.03 in the Classics section of this calendar.

HIST 2089.03: Alexander the Great and the Hellenistic Kings: Transforming the Ancient East and West.
See course description for CLAS 2232.03 in the Classics section of this calendar.

HIST 2090.03: The Rise of Rome: Consuls, Classes, and World Conquest.
See course description for CLAS 2231.03 in the Classics section of this calendar.

HIST 2091.03: The Fall of Rome: Caesars, Saints, and Warlords.
See course description for CLAS 2232.03 in the Classics section of this calendar.

HIST 2092.03: Death, Sex, and Gold in the Ancient Roman World.
See the description for CLAS 2234.03 in the Classics section of this calendar.

HIST 2101.03: Medieval England.
This course examines some of the major social, political, economic and cultural themes in English history from the reign of Alfred the Great to the Wars of the Roses. Major topics of study include the development and maturation of the English church, the impact of the Norman Conquest on Anglo-Saxon government and society, the development of the common law system, English monasticism, constitutional struggles in the late medieval period and war with France and Scotland. In an effort to understand and appreciate more fully the culture of medieval England, detailed consideration is given to contemporary source, in translation.
RECOMMENDED: HIST 1004X/Y.06
FORMAT: Lecture/tutorial
EXCLUSION: HIST 2000X/Y.06

HIST 2106.03: Tudor and Stuart England, 1485-1688.
A survey of the major events, personalities, and developments in sixteenth and seventeenth century English history. Topics to be covered include the religious reformation, the achievements of the Elizabethan age, colonial expansion, the civil war, and the “Glorious Revolution.”
FORMAT: Lecture
EXCLUSION: HIST 2000X/Y.06, 2104.03, 2109.03

HIST 2111.03: Modern Britain to 1884.
A survey of the development of British society from the reign of George II to the late Victorian era. This course will examine the emergence of class society, movement of popular protest, political reform, the growth of empire, and cultural change.
FORMAT: Lecture/tutorial
EXCLUSION: HIST 2000X/Y.06

HIST 2112.03: Modern Britain from 1880 to 1980.
This course will examine the development of British society from 1880 to the present day, touching upon the experience of Britain in two world wars, the growth of the welfare state, the decline of Britain’s empire and economy, the upheavals of the 1960s and 1970s and the emergence of Thatcherism.
RECOMMENDED: HIST 2104X/Y.06
FORMAT: Lecture/tutorial
EXCLUSION: HIST 2000X/Y.06

HIST 2153.03: Scotland from the Earliest Times to the Reformation.
This course examines the factors that contributed to the making of Scotland as a British and European nation, from c. 100 to the sixteenth-century Reformation. Lectures examine a series of themes arranged in roughly chronologically fashion, including the peoples who populated the region of North Britain around the year 1000, the coming of the Normans, urban life, relations between core and peripheral regions in the kingdom, the Scottish manifestation of the European witch-hunt, the “problem” of the Highlands, and pre-Reformation religious, social and political life. Emphasis is laid on the distinct social and cultural developments of the northern kingdom in contrast to its larger neighbour, England. In an attempt to appreciate more fully the civilization of this long period the readings of contemporary documents (in translation) constitute an integral aspect of the course.
FORMAT: Lecture/tutorial
EXCLUSION: HIST 2151.03 and 2152.03

HIST 2207.03: Aboriginals and Empires: Canada’s Origins to 1763.
This course explores Canada’s origins to 1763. It covers the history of First Nations peoples before and after the arrival of Europeans. It addresses themes such as the role of the physical environment; the fur, fish, and timber trades; and the imperial struggle for dominance in North America. While the lectures will narrate the major developments in the seventeenth and eighteenth centuries, the tutorials will focus on specific issues, such as the role of treaty in Canadian history. The course climax will consider the Conquest of Quebec and the end of the Seven Years War.
FORMAT: Lecture / tutorial
CROSS-LISTING: CANA 2207.03

HIST 2208.03: Patriots, Rebels, Refugees: Canada’s Roots in the Age of Revolution, 1763 to 1860.
As empires continued their international contest and Britain fought to maintain colonies within North America, old and new inhabitants of what would become Canada also wrestled with questions concerning who would exercise power within their communities and governing bodies. In the process they gave new, and at times, conflicting answers to old questions. What did it mean to be a patriot? Who and what were they willing to defend? Who and what were they prepared to resist? Immigrants, exiles and the refugees of European and North American wars shaped new homelands, even as the First Nations peoples became refugees within their own lands. In this course we explore the related questions of loyalty and conscience through the diaries and letters of men and women defining their place in a new order.
FORMAT: Lecture / tutorial
CROSS-LISTING: CANA 2208.03

HIST 2209.03: Making a Nation: Canada, 1860-1929.
This is the story of how British North America was transformed into a distinct nation-state for the twentieth century. We’ll use as a lens how a young Canada grappled with geographical, political, and social challenges: acquiring enormous territories amid growing provincial differences, maintaining loyalty to Empire while developing a New World identity; reconciling new and diverse cultural communities; and mobilizing for war.
CROSS-LISTING: CANA 2209.03

HIST 2210.03: Many Canadas: Canada, 1930 to the present.
This course explores the remaking of Canada, including the shift from imperial to continental and nationalist politics, the rise and transformation of third-party political movements, and the emergence of new ideas about the rights and responsibilities of the liberal individudal subject.
FORMAT: Lecture / tutorial
CROSS-LISTING: CANA 2210.03

HIST 2211.03: Modern Britain to 1884.
A survey of the development of British society from the reign of George II to the late Victorian era. This course will examine the emergence of class society, movement of popular protest, political reform, the growth of empire, and cultural change.
FORMAT: Lecture/tutorial
EXCLUSION: HIST 2000X/Y.06
HIST 2211.03: Social History of Canada before 1870. This course examines the social history of Canada from the time of contact to 1870, focusing on such topics as social control, violence and protest, women and domestic life, regional and nationalist movements, and the transformation of the economy.

HIST 2212.03: Social History of Canada since 1870. This course examines the social history of Canada since Confederation through such topics as the impact of industrialization, social classes, conflict, the role of women, the state and social development, and relationships among the wide variety of social groups in Canada.

HIST 2221.03: Rough Justice - Order, Disorder and Canadian Popular Culture to the 1890s. This course investigates the character of popular culture, investigating forms of community control and ideas of order among different classes and cultures, beginning with aboriginal societies at the time of contact, through the revolutionary era, to the Victorian period and the first decades of Canada’s nationalism. The course examines frontier towns, urban society and the city, the smallest, religious and revolutionary passions, and other sources of disorder (and the evolution of the means of making order) in this exploration of Canadian history’s most dramatic passages.

HIST 2222.03: Rough Justice - Order, Disorder and Canadian Popular Culture, 1890s to the Present. This course continues the themes explored in History 2211, setting out the context within which legislation related to popular culture and leisure patterns evolved from the 1890s into the present. Included are the regulation of alcohol, drug and tobacco consumption, sexual morality, pulp fiction and comics, sporting cultures, gambling, organized crime, and the use and abuse of animals in our redefinition of appropriate forms of recreation. Approved with Canadian Studies.

HIST 2231.03: The Making of Modern Canada: Canadian Political History, 1896 to the Present. This course surveys the major political developments in Canadian history since 1896. Topics to be examined include: regionalism and the emergence of third-party movements; French-English relations; federal-provincial relations; and the transformation of the liberal state in the post-1945 era.

HIST 2232.03: Atlantic Canada since Confederation: Regionalism, Identity, and Development, 1867-2000. A survey of the history of Atlantic Canada (the Maritimes and Newfoundland) from the 1860s to the present. Emphasis is placed on how episodes such as the “age of sail”, industrialization, class and gender conflict, war, the struggle for human rights and a chronic effort to play “catch-up” with the rest of the nation have defined this region’s identity.

HIST 2331.03: Creation of an American Republic: The United States, 1580-1865. This course studies the political history of American slavery, from the formation of the United States to the American Civil War. Lectures cover the growth of American slavery, antislavery politics and abolitionism, the sectional crisis of 1850s and the complex relationship between slavery and American democracy.

HIST 2333.03: The Politics of Reform in Twentieth-Century America. This course traces the domestic political history of the United States from the turn of the century to the Reagan era. Particular emphasis is placed on broad trends of change in those years, specifically, the growth of modern reform movements on American political culture. Some of the reform movements examined in the course were Populism, Progressivism, the New Deal, the civil rights movement, the women’s movement, and the student movement.
HIST 2335.03: Modern American Culture.
America is as ubiquitous today that it seems almost timeless. But it is a long and tumultuous history, one that both reflects and challenges the modern history of the United States. Ranging from high culture to mass culture, this course focuses on how major changes in American history have affected American literature, American cinema, and the everyday lives of American people. Documentary and feature films supplement the lectures.
RECOMMENDED: HIST 1060.06
FORMAT: Lecture
HIST 2340.03: Cold War [Hi]stories.
The course is designed to introduce students to the historiography of the Cold War: The Cold War - or the period of intense conflict between the United States and the Soviet Union - manifested, some argue, in the post-World War Two era and continued unabated until approximately 1989 or 1991.
FORMAT: Lecture
EXCLUSION: HIST 2336.03
A fair and balanced look at the Right, which was published in 2004. Unlike Franken, however, who concentrates his attack on Republicans, this course takes aim at a much more reluctance beast, American Historians. By concentrating on questions of historiography and methodology this course is designed to introduce students to some of the most egregious problems in American history. The goal is to encourage students to think critically about how and why US history is written the way it is.
HIST 2381.03: Latin America.
This survey course offers an introduction to Latin America's history, peoples, and politics from pre-colonial times to the present day. The course builds a foundational understanding of Latin America and its past, focusing on a broad range of Latin American countries. We will pay particular attention to issues of race, class, faith, and gender.
FORMAT: Lecture
EXCLUSION: HIST 2380.03, HIST 2387.03
HIST 2382.03: Central America to 1979.
See course description for SPAN 2690.03 in the Spanish section of this calendar.
HIST 2383.03: Area Studies on Mexico and Central America.
See course description for SPAN 2100.03 in the Spanish section of this calendar.
HIST 2384.03: Cuba from Colonial Times.
See course description for SPAN 2100.03 in the Spanish section of this calendar.
HIST 2385.03: The Cuban Cultural Revolution.
See course description for SPAN 2110.03 in the Spanish section of this calendar.
HIST 2386.03: Colonial Latin America.
This lecture course offers an introduction to Latin America's colonial period. Stretching from pre-colonial times to independence, this course examines the peoples, politics, and cultures that comprised Latin America between the fourteenth and early nineteenth centuries. It pays particular attention to issues of race, gender, class, and faith.
FORMAT: Lecture
EXCLUSION: HIST 2381.03
HIST 2387.03: Latin America Since Independence.
This lecture course introduces Latin American post-colonial history. Moving from the independence period in the early nineteenth century through until the present day, this course considers the peoples, politics, and cultures that came to define contemporary Latin America. This course pays particular attention to issues of race, class, and gender.
FORMAT: Lecture
EXCLUSION: HIST 2381.03
HIST 2388.03: Latin American Dictators: From Fact to Fiction.
See course description for SPAN 2130.03 in the Spanish section of this calendar.
HIST 2392.03: Introduction to Caribbean History (1450 to the Present).
This course provides a survey introduction to the history of the Caribbean basin with special emphasis on Cuba, Jamaica, and St. Domingue/Haiti. It covers the period from the mid-fifteenth century to the present day. Themes covered include: European conquest, the emergence of plantation economies, African slavery, revolutionary movements, abolition and emancipation, multi-cultural and interracial relations, relations with the US, nationalism, race, religion, and music.
FORMAT: Lecture
PREREQUISITE: none, but HIST 1901.03 and HIST 1902.03 are recommended
EXCLUSION: HIST 3392.03
HIST 2425.03: Africa Before 1900.
Modern historians of Africa continually battle popular misconceptions and myths about the African past. This course explores both the contours of change within the continent and the myths by which our knowledge of these has developed. Themes of particular interest include: dynamics along the desert-indian frontier, the Atlantic and Oriental slave trades, Indian Ocean connections, the spread of Islam, and the early stages of colonial rule.
FORMAT: Lecture/tutorial
EXCLUSION: HIST 2426.03 and 3241.03
HIST 2426.03: Africa Since 1900.
This course examines the nature of African states, societies and economies from the colonial period to the present, seeking the historical context for contemporary African dynamics. Some questions of interest include: How have development projects changed Africa? What are the myths and realities of neo-colonialism? How have Africa's political traditions supported quota for national stability? How have all these affected men's and women's lives?
FORMAT: Lecture/tutorial
EXCLUSION: HIST 2422.03
HIST 2502.03: The Ottoman Empire and Its Legacy in the Middle East, 1299-1923.
This course offers a survey of Ottoman history. It pays particular attention to the last two centuries of Ottoman rule and examines movements of reform, nationalism and resistance to European imperialism. Ottomans, Pan-Islamism, Anarchism and the emergence of Zionism are some of the issues covered. The course ends with World War One and the dissolution of the Ottoman Empire; two events considered the prelude to the making of the modern Middle East.
FORMAT: Lecture/discussion
HIST 2503.03: Medieval Islamic Civilization.
This course will introduce students to the Perso-Levantine world at the time of Muhammad's prophecy in the 7th century, and how the Arab Peninsula was impacted by the creation and emergence of an Islamic society in Medina and Mecca. With the displacement of Byzantine control in the Holy Land and the collapse of the Sassanid Empire in Persia, the Arab-ethnic community of Mecca and Medina had become an empire of unprecedented size and ethnic complexity. The course will examine the respective Umayyad and Abbasid dynasties, as well as the sultanates of the Saljuqs and Mamluks. The comparative portion of the course will focus on the geographic hordes of the Ottoman, Safavid, and Moghul. The central theme of this course will be an examination of the Islamic community, or umma, from its earliest days and how it interacted over the next thousand years with different surrounding traditions and cultures in the Mediterranean, the Indian Ocean, the Indian Ocean, and Southeast Asia. Another important theme will be the study of how various Islamic societies understood and resolved the age-old dynamic between tribal normativism and hierarchical urbanism.
FORMAT: Lecture
CROSS-LISTING: RELS 2503.03
EXCLUSION: First-year students and HIST 2501.03
HIST 2504.03: A History of the Modern Middle East.
This course will focus on contemporary history of the Middle East from World War One onwards. It will pay particular attention to the Mandate period of the 1920s and 1930s, and the subsequent creation of the state of Israel in 1948. Other topics will be covered: Arab Nationalism, the Ba'ath parties, the rise of political Islam, and the Arab-Israeli wars.
FORMAT: Lecture/discussion
HIST 2505.03: Turbans and Berets: A Modern History of Iraq.
This course is a survey of the history of Iraq from late Ottoman history until the present. It focuses on the role of oil, the role of the British, the regimes of Saddam Hussein, the Gulf Wars and the American invasions of Iraq and its aftermath. It pays particular attention to the role of the different ethnic and religious groups in Iraqi politics and cultural life.
FORMA: Lecture

HIST 2510.03: Modern History of South Asia.
This course will examine the region of South Asia from the mid-19th century - the height of the British Raj - to the present. Areas of concentration will include resistance to British rule, rise of the Congress Party, the 1947 Partition, and subsequent decolonization. The respective histories of modern India, Pakistan, and Bangladesh will be examined against the backdrop of nationalism, communization, and regional conflict.
FORMA: Lecture

HIST 2520.03: Ancient Israel.
See course description for clas 2220.03 in the Classics section of this calendar.

HIST 2614.03: Making Gender: Women and Men, Sex and Gender in Pre-Modern Europe.
This course examines the diverse and fascinating ways western cultures have shaped what it meant to be a woman or a man. Beginning in the time of the Roman Empire and continuing to the age of the French Revolution, the course examines such topics as ascetics, fasting saints, female “popes”, changing notions of the physical differences between the sexes, and early struggles for women’s rights.
FORMA: Lecture/tutorial
CROSS-LISTING: GWST 2300.03

HIST 2615.03: Making Gender - Male and Female from the American Revolution to the present.
This course examines the diverse and fascinating ways western cultures have shaped the meanings of gender. The history of women informs us about the once little-known history of femininity. And, as a result, historical changes in definitions of masculinity become visible. The meanings of gender are explored in this course through topics such as: the doctrine of separate spheres, the family wage, the homo-economicus, citizenship, welfare dependency, and infanticide.
FORMA: Lecture/tutorial
CROSS-LISTING: GWST 2301.03

HIST 2711.03: Struggles that Shaped the Modern World: 1600-1900.
European expansion from the 16th century reshaped the global economy, obliging many established societies to confront new challenges. Throughout Asia, the New World and Africa, old conflicts between and within states now had to confront the additional challenge of increasingly powerful European intruders. These encounters, featuring a complex mixture of military, cultural, religious, political and economic interactions, shaped the modern world as diverse groups struggled to pursue their interests through resistance, accommodation, sources, cooperation and alliance. This course will explore the ways in which select societies navigated these encounters to better understand the intricate patterns of linkage and dissonance that mark our world in modern times.
FORMA: Lecture

After World War II, African and Asian nationalists pressed home their claims for independence from colonial rule. During the Cold War, movements for social reform in the so-called Third World combined with these nationalist traditions to create many enduring sites of conflict. This course explores the strategies, successes and failures of these movements of opposition, assessing their impact in reshaping the 20th century.
FORMA: Lecture

HIST 2750.03: The Pirate and Piracy.
See course description for EMSP 2480.03 in the Early Modern Studies section of this calendar.
FORMA: Lecture/discussion
CROSS-LISTING: EMSP 2480.03

RESTRICTION: Restricted to students in their 2nd year and above

HIST 2900.03: Introduction to the History of Art and Visual Culture.
Why have all human beings, at all times and in all places made pictures? This course will explore fundamental themes in visual production, and its role, sex, death, religion, race, knowledge, power and entertainment. Students will be encouraged to consider cross-cultural perspectives and trans-historical connections in their study of visual culture. They will also be introduced to the fundamentals of traditional art history through the chronology of western art production and stylistic movements. Students will develop the skills to describe, analyze and think critically about the visually saturated world in which they live.

HIST 2985.03: Totalitarianism and Science.
See course description for HIST 2203.03 in the History of Science and Technology section of this calendar.
FORMA: Lecture
CROSS-LISTING: HIST 2203.03

HIST 2990.03: Magic, Heresy and Hermeticism: Occult Mentalities in the Scientific Revolution.
See course description for EMSP 2300.03 in the Early Modern Studies section of this calendar.
FORMA: Lecture/tutorial
CROSS-LISTING: HIST 2300.03

HIST 3000.03: Topics in Early Modern European History.
Topics to be studied and researched will vary from year to year. In some years, the geographical focus may be Britain, while in others it will be western Europe more generally. Topics may include the religious reformation; print culture; political protest; and popular culture.
FORMA: Lecture/discussion
PREREQUISITE: A course in European or British History

HIST 3002.03: The Medieval Church.
This course ranges far and wide over the history of the church in medieval Europe, adopting a thematic rather than a strictly chronological approach. Subjects of study include monasticism, history, education and the universities, town and cathedral, lay-clerical conflict, and “popular” concepts of religion. Each year several topics are examined in detail, with the help of original documents in translation, and using recent periodical literature and or monographs. Students prepare two versions of a well-researched paper, and class discussions are used to explore relevant materials and readings in greater depth. Some prior knowledge of medieval European history is essential.
FORMA: Lecture/discussion
CROSS-LISTING: HIST 3002.03 or HIST 2003.03 or HIST 3101.03 or HIST 3102.03 or HIST 2103.03 or REL 3003.03
EXCLUSION: HIST 3001.03 and 3002.03

HIST 3003.03: Britain and the Celtic Realms 1066-1400.
This course examines the social, political and cultural history of the Gaelic-speaking peoples of the British Isles from c. 1000 to the mid-twelfth century. With particular emphasis on the interaction between the peoples of Wales, Scotland, and Ireland on the one hand, and the culture of the English kingdom on the other. The course examines such fundamental Celtic institutions as the family, kinship, the law, and the church down to the end of the first millennium, with special focus on the various sources, written and unwritten, that inform the early history of the Gaelic-speaking peoples and their lands. Classes are conducted in the form of lectures/tutorials, that is, a single lecture once a week is followed by a tutorial in which readings relating to the lecture topic are discussed. In an attempt to appreciate more fully the civilization of the period, the reading of contemporary works (in translation) constitutes an integral part of the course.
FORMA: Lecture
CROSS-LISTING: HIST 3003.03

HIST 3006.03: Renaissance and Reformation Europe, 1348-1559.
A survey of the major themes, subjects, and personalities in western European history from the Italian Renaissance to the beginnings of the Protestant Reformation in the sixteenth century. Topics to be covered include the rise of

RESTRICTION: Restricted to students in their 2nd year and above
HIST 3045.03: The French Revolution and Its Interpretations.
The seminar examines the French Revolution, its origins and its interpretations, as well as the legacy of the French Revolution for modern political culture. Each time the seminar is offered it may focus on a specific theme related to the French Revolution.
FORMA T: Seminar
PREREQUISITE: One European history course
EXCLUSION: HIST 3041.03, HIST 3041.03
HIST 3049.03: The First World War.
Selected topics on the origins, course and consequences of the First World War, including strategic and political decision-making, the Western Front, Gallipoli and the Middle East, economic mobilization and the home fronts, the Eastern Front, the war at sea, and the peace treaties.
FORMA T: Lecture
HIST 3050.03: Europe and World War Two.
Selected topics on the origins, conflicts and aftermaths of the Second World War as this involved Europe, including Nazi foreign and occupation policies, strategic and political decision-making by the Allied and Axis powers, national resistance movements, and the wartime origins of the Cold War.
RECOMMENDED: HIST 2021.03, 2022.03, 2031X/Y.06, 2032.03, 2040X/Y.06, 2132.03
FORMA T: Lecture/discussion
PREREQUISITE: One 2000 level course in European or modern British history
HIST 3051X/Y.06: Fascist and National Socialist Movements in Europe, 1900-1945.
Fascism remains one of the most misunderstood and intriguing curiosities of modern history. At the height of its popularity and influence in the period between the World Wars, virtually every European country had one or more groups that were considered fascist or thought of themselves as such in Germany and Italy, of course, but also in France, Spain, Hungary, Romania, and elsewhere. This course, structured as lecture/discussion, offers students the opportunity to explore the ideas, experiences, aspirations and political realities of this simultaneously threatening and fascinating historical phenomenon.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMA T: Lecture/discussion
PREREQUISITE: One European history course or permission of instructor
HIST 3056.03: The Holocaust: The Destruction of the Jews, 1933-1945.
The destruction of most of European Jewry by Nazism and its helpers during the Second World War is studied in the context of centuries-old religious anti-Semitism, nineteenth-century Jewish emancipation and the emergence of racist ideology, the political and social situation of Jews in eastern and western Europe before the Second World War, and the consequences of mass killing at Auschwitz and other death camps, and the response of bystander nations to the perpetration of genocide.
RECOMMENDED: HIST 2021.03, 2022.03, 2031X/Y.06, 2032.03, 2040X/Y.06, 2132.03
FORMA T: Seminar
PREREQUISITE: One 2000 level course in European History
EXCLUSION: HIST 3056.06
HIST 3059.03: Confronting Fascism.
See course description for GERM 3401.03 in the German section of this calendar.
FORMA T: Lecture/discussion
CROSS-LISTING: POLI 3400.03, GERM 3401.03
HIST 3060X/Y.06: Civilization of Baroque Italy/The Origins of Modern Italy.
A descriptive introductory survey of Italy from the late Renaissance to the French Revolution. Lectures and tutorials will feature a broad array of original sources in translation and numerous images. Taught in English.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMA T: Lecture/seminar
CROSS-LISTING: ITAL 3060X/Y.06
HIST 3073.03: History of Marine Sciences. 
Course description for MRES 4646.03 in the Marine Science section of this calendar.

HIST 3075.03: Science and Religion: Historical Perspectives. 
Course description for HIST 3516.03 in the History and Philosophy of Science section of this calendar.

HIST 3076.03: Science and Religion: Contemporary Perspectives. 
Course description for HIST 3803.03 in the History of Science and Technology section of this calendar.

HIST 3076.05: The Many Faces of Frederic Chopin: Problems in Modern Biography. 
The seminar examines the process of creating biographical representations in history by focusing on Frederic Chopin (1810-1849) and the appreciations of his life, personality and music that occurred both during his lifetime and after his death. By analyzing how Chopin's images were constructed—and the manner in which he fashioned himself—the course explores broader themes, such as biography in historical writing, the nineteenth-century paradigms of biography writing, politics of biography, biography and the construction of the subject, biography as a control of cultural narrative, and the limits of biographical knowledge. FORM: Seminar PREREQUISITE: One European history course, permission of instructor

HIST 3080.03: Russian Society. 
Basic institutions of 20th century Russian society are considered in their historical context, with special attention to the former role of the Party, official culture and literature, the workings of the economy, and social stratification. RECOMMENDED: BUSN 1000.06, BUSN 2000.06 FORM: Seminar PREREQUISITE: Some Russian history, Recommended HIST 2101.03 and HIST 2201.03 CROSS-LISTING: HIST 3080.03, BUSN 3080.03

HIST 3082.03: Russian Topics. 
Topics to be studied and researched will vary from year to year. They may include the work of Boris Pasternak, the doctrine of peaceful coexistence, the position of national minorities, the role of literature (official and samizdat) and the press, the Cold War, Khrushchev's "Thaw", Brezhnev, Gorbachev, and Yeltsin. RECOMMENDED: HIST 2201.X/06 or BUSN 2201.03/2003 or BUSN 2202.03/2003 FORM: Lecture/discussion CROSS-LISTING: BUSN 3082.03

HIST 3094.03: Vladimir Lenin and Leon Trotsky: Their Life and Works. 
This course examines the intellectual and political biographies of V.I. Lenin and L.D. Trotsky, the main architects of the 1917 Revolution in Russia. Among the questions to be considered are Trotsky's relationships to Lenin and Stalin, their roles in the Revolution and Civil War, their analyses of the New Economic Policy, Trotsky's leadership of the Left Opposition, and their place in the history of Marxist theory and practice: the course will look at secondary literature on Lenin and Trotsky as well as selections from their writings. FORM: Seminar CROSS-LISTING: BUSN 3094.03

HIST 3096.03: The History of Ideas in Russia - From Official Nationality to Solzhenitsyn's Neo-Slavophilism. 
This course examines some of the main currents in Russian intellectual history from the middle of the nineteenth century through the 1990s. Topics include classical Slavophilism and early Westernism, Populism and Nikolai, Anarchism, Marxism, Leninism, Socialist Realism, anti-Stalinism, Glauser, neo-Westernism (Solzhenitsyn), and neo-Slavophilism (Solzhenitsyn). RECOMMENDED: HIST 2020.V/06 or BUSN 2021.V/03 or BUSN 2202.V/03 FORM: Seminar/disussion CROSS-LISTING: BUSN 3096.03

HIST 3102.03: Seminar in Tudor History, 1485-1603. 
This course examines in depth the principal events of the sixteenth century in England. Topics include the dissolution of the monasteries, the execution of the archbishop of Canterbury, Oliver Cromwell, and the international context of the late Tudor period. RECOMMENDED: HIST 2104.03 EXCLUSION: HIST 2104.03

HIST 3103.03: Seminar in Stuart History, 1603-1688. 
This course examines in depth the principal events of the seventeenth century in England. Topics include the rise of absolutism at home and abroad, the causes and course of the civil war, including the growth of radical political thought, the Cromwellian regime, the importance of Parliament, the Restoration, and the Revolution of 1688. Class discussions will rely on detailed readings of primary sources and historiographical debates. Students will be expected to produce a major, well-researched essay. Some prior knowledge of early modern English history is essential. FORM: Seminar PREREQUISITE: One previous British history course EXCLUSION: HIST 2105.03

HIST 3105.03: The English Civil War. 
A course on one of the most tumultuous and eventful periods in British history, leading up to and including civil war and revolution 1642 to 1660. Select primary sources will be used in addition to secondary works. Topics to be studied include the social structure of early Stuart England, the Church and its critics: foreign policy; radical political: religious sectarianism; and the impact of the war and of alternative social and political identities. FORM: Lecture/discussion CROSS-LISTING: HIST 3106.03

HIST 3107.03: The English Family and Household. 
A number of commentators believe that “the family” is in crisis, its stability threatened by declining marriage rates, rising levels of divorce and childlessness, and the emergence of alternative family forms. But what does the term “the family” actually mean? This course examines the origins of the modern Western family by tracing the history of household organization, family and relationships in England from the 15th to 18th century. Students will examine the formation of the state, the reformations in religion and their broader effects, royal propaganda, political culture, and the achievements of the Elizabethan age. Class discussions will rely on detailed readings of primary sources and historiographical debates. Students will be expected to produce a major, well-researched essay. Some prior knowledge of early modern English history is essential. FORM: Seminar PREREQUISITE: One previous British history course EXCLUSION: HIST 2105.03

HIST 3108.03: Topics in the Social and Cultural History of England, c. 1500-1850: Madness and Marginality. 
“Marginality” is a sociological term that describes the situation of groups of people who are excluded or persecuted by the dominant culture. This course will examine such groups as witches, prostitutes, vagrants, and those deemed mentally ill. It will study the processes and politics of exclusion and regulation. It will ask how and why groups become labeled as beyond the boundaries of acceptable society and how such labeling affects their practice and experience. FORM: Seminar PREREQUISITE: One previous history course
HIST 3109.03: Topics in the Social and Cultural History of England, c. 1500-1850: Everyday Life. Aspects of daily life are often assumed to be "outside" of history, either unchanging or altered simply by natural forces of progress. This course will challenge such assumptions and look at the historically contingent practices surrounding such things as death, manners, sport, beauty, medicine, and education as experienced in early modern England. The course will address how and why such daily practices change, and the effects of such changes on the larger society. 

FORM: Seminar. PREQUISITE: One previous history course

HIST 3113.03: Britain in the Age of the First World War. This course examines in depth major themes in British history from 1906 to the early 1920s, including the origins of the First World War, the experience and impact of war, wartime politics and strategy, the decline of the Liberal party and the rise of Labour, and post-war reconstruction. 

FORM: Lecture/discussion. PREQUISITE: One of the following: HIST 3021.03, 2112.03; 3112.03; 3114.03; 3116.03; 209X/Y.06; 208X/Y.06.

HIST 3114.03: Britain in the Age of the Second World War. This course examines in depth major themes in British history from the early 1930s to the early post-war years, including the Great Depression, appeasement and the outbreak of the Second World War, the experience and impact of war, wartime politics and strategy, the welfare state, the post-war Labour government and the transition to peace. 

FORM: Lecture/discussion. PREQUISITE: One of the following: HIST 3021.03, 2112.03; 3112.03; 3113.03; 3116.03; 209X/Y.06; 208X/Y.06.

HIST 3210.03: Canadian Cultural Landscapes. This course explores the origins of one "signature" landscape in each province. Contact with different geographies shaped distinctive regional histories, but at the same time, the story of each place is tied to the national narrative. These landscapes also illuminate how nature has been understood, used, and transformed since the fifteenth century. 

FORM: Lecture and Discussions. CROSS-LISTING: CANA 3200.03, GEOG 3210.03

HIST 3220.03: Youth Culture in Canada, 1950s to 1970s. The 1950s and 1960s were decades of often startling social change throughout North America in general and Canada in particular. This course will attempt to understand these changes and their impact on our society. 

FORM: Lecture/tutorial. RECOMMENDED: One previous history course

HIST 3222.03: Topics in Canadian Social History, Nineteenth and Twentieth Centuries. This seminar will explore major themes in Canadian social development. The topics discussed will vary from year to year but will emphasize such themes as changing values in Canadian society; the nature of popular culture; the relationship of order and disorder; the family; gender relations; and social classes. 

FORM: Lecture/discussion or seminar. PREQUISITE: A course in Canadian History

HIST 3223.03: The Caring Society? - Welfare in Canada since 1900. This course examines changes over the twentieth century in the ways Canadians have dealt with people's needs, their own or others', whether for income, housing, personal care, or other matters of survival and well-being. Both private and government forms of welfare provision will be studied, with the overall purpose of understanding why Canada came to have the kind of welfare state it does.

FORM: Seminar. PREQUISITE: One course in Canadian history

HIST 3227.03: Criminal Law, Crime and Punishment in Canadian Society, 1890 to the present. Continuing the approach and themes of HIST 3226.03, this course studies crime, punishment, and the criminal law as they reflect social, economic, political, and ideological developments. As appropriate, these are set within their international context, and in particular linked to the American system of law and justice. We pay attention to the impact of technological change on crime, detection of crime, enforcement mechanisms, and alternative means and methods of punishment. 

FORM: Lecture/discussion. EXCLUSION: HIST 3225.03

HIST 3234.03: French Canada. This course studies the development of French-Canadian nationalist politics in their social, cultural, philosophical and economic contexts. 

FORM: Seminar or lecture/discussion. PREREQUISITE: A course in Canadian history, or instructor's consent

HIST 3260.03: History of the Canadian West. This course takes a thematic approach within a chronological framework, exploring social, economic and political topics in the development of Western Canada. Among the themes covered are the nature of New France, British North America, and the outbreak of the Second World War. 

FORM: Seminar or lecture/discussion. EXCLUSION: HIST 3256.03

HIST 3266.03: History of the Canadian West. This course explores the origins of one "signature" landscape in each province.

FORM: Lecture/discussion or seminar. PREQUISITE: A course in Canadian history

HIST 3272.03: Themes in the History of Atlantic Canada. This course provides students an opportunity to broaden their knowledge of historical trends in the region through archival research based on specific selected themes, which vary from year to year.

FORM: Seminar. PREQUISITE: One course in Canadian History

HIST 3273.03: Nova Scotia: Pre-Confederation. An exploration of character and circumstances in the history of provincial society, from the era of European "invasions" to the debate over entry into British American unions. Approved with Canadian Studies. 

FORM: Seminar. PREQUISITE: One Canadian History course or instructor's consent

EXCLUSION: HIST 3270/31.03

HIST 3277.03: Law and Justice in Canadian Society, to 1890. Dissection begins with an exploration of concepts of law and justice among Native Peoples prior to and during the occupation of the continent by the French and British. 

FORM: Seminar. PREREQUISITE: A 1000- or 2000-level course in Canadian history

HIST 3282.03: The Caring Society? - Welfare in Canada since 1900. This course examines changes over the twentieth century in the ways Canadians have dealt with people's needs, their own or others', whether for income, housing, personal care, or other matters of survival and well-being. Both private and government forms of welfare provision will be studied, with the overall purpose of understanding why Canada came to have the kind of welfare state it does.

FORM: Seminar. PREQUISITE: One previous history course

HIST 3284.03: Canadian Cultural Landscapes. This course explores the origins of one "signature" landscape in each province. Contact with different geographies shaped distinctive regional histories, but at the same time, the story of each place is tied to the national narrative. These landscapes also illuminate how nature has been understood, used, and transformed since the fifteenth century. 

FORM: Lecture and Discussions. CROSS-LISTING: CANA 3200.03, GEOG 3210.03

HIST 3290.03: History of the Canadian West. This course explores the origins of one "signature" landscape in each province.

FORM: Lecture/discussion or seminar. PREQUISITE: A course in Canadian history

HIST 3366.03: History of the Canadian West. This course explores the origins of one "signature" landscape in each province.
HIST 3274.03: Nova Scotia: Post-Confederation.
This course surveys the history of Nova Scotia from the 1860s to the present. Topics include the debate over Confederation, the nature of Victorian society, the world wars, and two upheavals of the 1930s and 1990s, Aboriginal and black communities, heritage and tourism, and Nova Scotia's political and intellectual relationship with the rest of Canada.
FORMAT: Seminar or lecture/discussion
PREREQUISITE: One Canadian History course or instructor's consent
EXCLUSION: HIST 3270.X/06
HIST 3282.03: Public History.
This course explores major issues and debates in the practice of history outside the academy. Against such theoretical concepts as theusable past and the challenge to the national narrative, we will examine critically the presentations and politics of history in the arts, media, popular history, and state policy.
FORMAT: Lecture/discussion
PREREQUISITE: One second-year course in history
EXCLUSION: HIST 3222.02 in 2005-2006
HIST 3293X/Y/06: The Political Economy of the Car: Fordism and Post-Fordism in International Perspective.
This course examines the emergence and transformation of the global economic system known as Fordism, beginning with Henry Ford's revolutionary marriage of mass production with mass consumption in 1914. Topics to be explored include: technological change in the workplace; the relationship between industrial unionism and radical political movements; the gender, racial and religious politics of Fordism; and the growth of mass culture in the era of mechanical reproduction. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: At least one previous History credit; second-year standing or better
EXCLUSION: HIST 3292.01
HIST 3300.03: Topics in the History of the Americas, 1450-1870.
This course examines aspects of the historical development of the Americas from the first European impact through the middle of the 19th century to the emergence of nation states in the nineteenth century. It explores topics such as relationships between Aboriginal and European peoples, religions and socio-economic development; popular culture and gender; imperialism and the slave trade; the development of slavery; the rise of revolutionary ideologies; the American and Haitian Revolutions; and the impact of civil wars.
FORMAT: Lecture/discussion
PREREQUISITE: Any one of HIST 2311.03, HIST 2006.03, HIST 2007.03, or any second-year course in History
HIST 3333.03: The American Archives.
This course is designed to introduce students to the use of American historical archives. It will be taught only as a summer course and students will spend one week working at the Kennedy Archives in Boston or the National Archives in Washington DC. During the course students will be researching a paper they have already completed on America in the Sixties. It is expected that by the end of the course students will be able to send their papers to an undergraduate journal for publication. The archives can only accommodate a maximum of 12 students at a time. Students will need to have registered for this course, purchased their tickets, and secured accommodation by April 20th. Check with instructor for a confirmation about the location to be visited before the course begins.
FORMAT: Seminar
PREREQUISITE: Students must have written a third year history paper on some aspect of America in the Sixties.
HIST 3350.03: Family and Community in North America, 1600-1900.
The family in North American society, from when the family was a model for social relations to the time when it was idealized as a private refuge. Among the topics considered are the role of the family in rural and urban communities, the demographic transition from high fertility and mortality, the role of record keeping in shaping the family's economic and educational autonomy, the role of ideology in shaping sex roles and child rearing, and the relations of family and community according to ethnic group, class and economic setting.
RECOMMENDED: A course in the sociology or social anthropology of the family
FORMAT: Lecture/discussion
CROSS-LIST: GWST 3350.03
HIST 3358.03: Slavery, Gender, and Power: Women in Nineteenth Century America.
This course studies the tangled histories of slavery and gender in nineteenth century America. Principal topics include the lives of female slaves, the cult of domesticity, the rise of early feminism, the roles of women in the expansion of slavery, and the tension between gender and race.
FORMAT: Seminar
CROSS-LIST: GWST 3358.03
HIST 3360.03: Enslavement and Emancipation: African-Americans in the U.S. South to 1900.
This course examines slavery as a system of racial subordination and economic exploitation. Attention is given to the social, familial, and cultural life of the slaves, the role of slavery in shaping southern nationalism and national racial beliefs, and to reconstruction after the Civil War.
RECOMMENDED: HIST 3321.03
FORMAT: Seminar
PREREQUISITE: One second-year United States history course
HIST 3361.03: The American Civil War and Reconstruction.
The Civil War, occasioned by the fermentation of the Southern Confederacy and the Union government's refusal to recognize the existence of a separate southern nation, was a pivotal moment in the history of the United States. This course will examine the causes of the war, the forces behind slave emancipation, the military fortunes of the two confederates, and the efforts undertaken by the victorious society to alter the legacy of the defeated South.
RECOMMENDED: HIST 3321.03
FORMAT: Seminar
HIST 3365.03: Vietnam War [Hi]stories.
This course is designed to introduce students to the impact of American involvement in the war in Vietnam. It will cover the major issues of the war including the political and social conditions in Vietnam; the reasons for American involvement; the development of United States policy toward Indo-China; the military conflict itself; and the legacy of the war. Rather than concentrating on the events as they unfolded, however, this course will focus on questions of interpretation and methodology. Toward this end, classes are designed to introduce students to both the historiography of the period under question and to some of the theories historians have used to think about and/or interpret the American experience in Vietnam.
FORMAT: Lecture/discussion
PREREQUISITE: Any 1000 or 2000 level North American history course
CROSS-LIST: 5365.03
HIST 3367.03: The History of Modern Intelligence in War and Diplomacy.
Intelligence, or accurate up-to-date information about unfolding world events, is crucial to the success of modern foreign policy. Nations survive or prosper based on their ability to gather, evaluate, understand and use information about the world. This course is designed to introduce students to the study of intelligence and how various intelligence systems function. The goal of the course is to enhance students' understanding of national intelligence communities in Britain, Canada, Russia and the United States. By examining the history of four different intelligence communities, we will begin to think critically about how intelligence fits into the policy process and how it is managed and controlled by the various governments.
FORMAT: Lecture/seminar
HIST 3369.03: America in the 1960s.
The "long sixties" – a period from the mid-sixties through the early seventies – was an extraordinary time in American history when a number of different events attempted to transform American society. In many ways they were successful, and we are still living with the legacy of the sixties today. This course is designed to introduce students to the numerous issues, conflicts, and problems that confronted Americans in the 1960s. The course will focus on the various movements of social reform that characterized this period. We will also discuss the rise of the "new left" and the "new right" and what those ideological movements meant for American political culture. The overall goal of the course is to encourage students
to think about how individuals adjust their values to fit a particular political and cultural climate. Why do some people conform to political and social values, while others do not? Students will come at these questions from a variety of perspectives. Art, film, fiction, and music will be used throughout the course.

FORMA T: Lecture/discussion
PREREQUISITE: HIST 2341.03 or HIST 3370.03 or HIST 3372.03 or instructor's permission

HIST 3370.03: North American Landscapes.
This course is an introduction to the history of landscapes in North America from the fifteenth century to the present day. Each week we will explore how nature has been understood, used, and transformed in a variety of different places across the continent, and how the history of these landscapes fits into the larger histories of Canada and the United States.

FORMAT: Lecture/seminar
CROSS-LISTING: HIST 2370.01

HIST 3372.03: The Cuban Missile Crisis.
This course is designed to introduce students to the history of the Cuban Missile Crisis. In the class students will examine both Russian and American primary and secondary sources. The goal is to provide students with the necessary skills to think critically about how scholars historicize the past.

FORMAT: Lecture

HIST 3373.03: Spying on the World: The CIA in American History.
This course is designed to introduce students to the history of the Central Intelligence Agency. Over its history the CIA developed into one of the most influential government agencies in American history. During the course students will examine the CIA's role in shaping American foreign policy, covert operations, spying, counter-intelligence and cryptography.

FORMAT: Lecture

HIST 3374.03: The Objectivity Question in American History.
This course is designed to introduce students to the historiographical trends in American history by examining some of the major historical topics of the last century including the Civil War, World War One, Progressivism, World War Two, the Holocaust, The Cold War and The Vietnam War. The course examines whether American historians have been successful in their quest for objectivity.

FORMAT: Lecture/discussion
PREREQUISITE: A second year history course

HIST 3374.03: The Objectivity Question in American History.
This course is designed to introduce students to the historiographical trends in American history by examining some of the major historical topics of the last century including the Civil War, World War One, Progressivism, World War Two, the Holocaust, The Cold War and The Vietnam War. The course examines whether American historians have been successful in their quest for objectivity.

FORMAT: Lecture/discussion
PREREQUISITE: A second year history course

HIST 3380.03: Slavery and Freedom in the Americas.
This course will take a broad perspective on slavery by examining some of the defining features of forced labor throughout the Americas over the course of four centuries (with occasional examples from elsewhere in the world). To complicate the overly simplistic slave-free dichotomy and develop a more nuanced understanding of the denial of freedom, we will investigate not only chattel slavery but other systems of free and routine labor that existed in the Americas, such as the encomienda, convict labor, debt bondage, serfdom, pariah apprenticey, postwar and prison work, indentured servitude and wage labor. We will consider definitions and manifestations of slavery (including racial ideology) that have been used by past and present humanitarians. To better understand the extent to which the working environment shaped the lives of the enslaved, we will compare the living and working conditions of laborers in a range of historical settings. We will conclude with a survey of the rise of free labor ideology, the impact of emancipation in the Americas and a glance at broad and free labor systems in the new millennium.

FORMAT: Seminar

HIST 3390.03: Latin America: Revolution and Repression.
This course explores the experiences of revolution and repression in post-colonial Latin America. Focusing on the twentieth century, this course will examine the making and unmaking of revolutionary political projects, paying particular attention to matters of race, class, and gender.

FORMAT: Lecture/discussion
PREREQUISITE: Any second-year history course or permission of the instructor
EXCLUSION: HIST 3391.03, HIST 3392.03

HIST 3393.03: Indigenous Movements in Latin America.
This course considers the historical experiences of Latin American indigenous peoples. We explore four periods in post-colonial Latin American indigenous history: the early republics (1800s-1910); the rise of pro-independence policies and activism (1920s-1930s); the submersion of indigenous issues to a class-based agenda (1940s-1970s); and the rise of indigenous movements (1975-present).

FORMAT: Lecture/discussion

HIST 3394.03: Slavery, War and Piracy in the Early Caribbean.
The Caribbean was a world of rapid riches, constant brutality and death and it was the central interest of European powers as they expanded to the Americas. This course will explore the politics, economics, societies, and cultures of the islands within the Caribbean Sea and the mainland territories bordering on it during the early modern era. It will conclude by examining how this world was changed by the dismantling of the slave system and the age of revolutions. The course will demonstrate exactly why this region became the most important, economically, within the Americas and why European powers were so intent on defining it.

FORMAT: Seminar/lecture

European colonial rulers and business interests laid out the framework of the sub-Saharan African colonial order from about 1850 to the 1920s, seeking ways to exploit African labour and natural resources. But imperial plans were limited and sometimes frustrated by African resistance, and by historical dynamics within Africa, such as the rise of new merchants and Islamic revolution. This course explores how the realities of colonial expansion, infused with European imperial ambitions, led to profound changes in African society during this early colonial period.

FORMAT: Lecture/discussion

HIST 3431.03: Struggles in The City: Labour, Migration and Urban Life in Colonial India.
There were many important urban centres in pre-colonial Africa; however, colonization and industrialization changed both the pace and nature of urbanization. Some cities grew and new cities and mining settlements were established. Africans came to labour in these colonial cities for a host of reasons - some were forced off their land, some sold themselves into indenture when settlers and colonial governments appropriated vast tracts of land, others needed to earn the cash economy to pay colonial taxes; women and men sought new opportunities and adventure. This movement to the cities transformed the lives of millions of Africans. This course will focus on the lives of these urban dwellers, the development of urban cultures, the gendered character of urbanization, the creation of new social, political, economic and criminal networks, conflict and cooperation amongst urbanites, and the nature of colonial oppression and control in the cities.

FORMAT: Lecture/discussion

HIST 3435.03: The Rise and Fall of African Slavery.
Many African societies, like pre-industrial societies elsewhere, used slaves as well as other forms of labour for a variety of purposes. The rise of external slave trades after 1700 — notably across the Atlantic and Sahara — transformed many African societies into specialized slave exporters. As external slave trades declined in the 18th century, many African economies used extensive internal slave labour to produce exports, a pattern of colonial governments were slow to change in the 20th century. This course examines these changes in African slavery, and how they affected such issues as gender relations and class structure.

FORMAT: Lecture/discussion
HIST 3451.03: Southern Africa to 1860. Examines the history of Southern Africa before the coming of the mineral revolution. The course focuses on South Africa, but with a regional perspective. Themes include the nature of Khoi and San societies, the expansion of Bantu-speakers, Dutch settlement and administration of the Cape area, the rise of the Zulu, Shaka's empire and the Zulu, the British takeover from the Dutch, the impact of the humanitarian movement and the Great Trek. African states and kingdoms in the nineteenth century, and the formation of the Boer Republics. FORMAT: Lecture/discussion

HIST 3452.03: South Africa since 1860. This course examines not only the changes in race relations and politics, but also the effects of mining and other industries on urban and rural settlement after the discoveries of diamonds and gold. Themes will include a regional perspective on Boer politics and the "imperial factor," the growth of Afrikaner and African nationalism, the Boer War and militarization, the development of apartheid and South Africa's role in the world. RECOMMENDED: HIST 3451.03

HIST 3470.03: Wars and Revolutions in Nineteenth-Century Africa. Africa in the nineteenth century was profoundly reshaped by a complex set of events. Muhammad Ali undertook to modernize Egypt. New Islamic states founded in the west developed plantation economies of internalized slave labor. On the Atlantic coast, merchant princes made their fortunes supplying topical goods for Europe's Industrial Revolution. In Central Africa the struggle for slaves and ivory both wreaked havoc and stimulated new states. In the south, the rise of Zulu power generated waves of conquest and colonization. This course assesses the extent to which Africa was reshaped in the revolutionary century before colonial partition. FORMAT: Lecture/discussion PREREQUISITE: Any 2000-level African history course or permission of the instructor

HIST 3471.03: Wars and Revolutions in Twentieth-Century Africa. Africa as portrayed in the Western media is a continent plagued by violence without end. Often these conflicts have not been carefully explained, rather than they have been written off as "tribal" or "inherently" incomprehensible episodes of history. This course will examine several types of conflicts throughout the twentieth-century and will seek answers to such questions as: Who initiated these conflicts? Why? What role do external actors play in fighting for? How did these conflicts influence wider social, economic, and political development? In what ways did colonial politics and the colonial legacy influence African conflicts? What role has the international community played in African conflicts? What role do African elites or local communities play in these conflicts? Grappling with these questions will allow us to move beyond simplistic explanations to acquire a better understanding of the history and revolutions that have so marked twentieth-century Africa. FORMAT: Lecture/discussion CROSS-LISTING: HIST 5471.03

HIST 3500.03: Topics in Global History. This is a special course dedicated to those topics that comprise multi-regional, global themes in the early modern and modern eras. Topics will vary, but possible course themes include: History of Slavery from a Global Perspective, Rise of Early Modern World-systems, and Colonialism and Ideology in Asia and Africa. FORMAT: Lecture PREREQUISITE: Instructor permission

HIST 3502.03: Thucydides and the Greek World at War. See course description for CLAS 3502.03 in the Classics section of this calendar. FORMAT: Seminar CROSS-LISTING: CLAS 3502.03

HIST 3509.03: Arab Caliphas, Turkish Commanders, and Persian Viziers: Islamic History, 750-1200. The focus of this course will be the different manifestations of Islamic civilization as it reached its zenith under a series of caliphates and sultanates across Spain, North Africa, the Levant, Iran, Central Asia, and South Asia between 750 and 1400. These states will be the beneficiaries of the rise of the caliphate and the emergence of numerous Islamic communities and movements (shias, Sunnis) as the Abbasid empire (750-1258) struggled to maintain political and doctrinal unity. There will also be a discussion of the Turkish migrations and the corresponding rise in Turkic Islamic statesmanship such as the Seljuqs and the Ghurids. This course will examine the causes of the Mongol invasions and their devastating effect on the central Islamic world. This course will also discuss the incorporation of Islamic culture during the Abbasid period and the rise of Mamluk (“slave”) thought, notably in physical sciences, political studies, and philosophy, and how this synthesis was also reflected in terms of mysticism, art, architecture, and literature in the East as Islamic culture interacted with Zoroastrian, Buddhist and Hindu cultures in Iran, Central Asia, and India. FORMAT: Lecture/discussion PREREQUISITE: HIST 2503.03 or HIST 2504.03 or CLAS 1010.06 CROSS-LISTING: CLAS 3501.03

HIST 3510.03: Sultans and Shahs: Politics and Religion in the Islamic Gunpowder Age (1500 - 1800). Until the devastating Mongol invasions of the 13th century, the principal centers of Islamic power, culture, and thought had been based in Cairo and Baghdad. This course will examine the post-Mongol Islamic world, and how politics and religion were irrevocably changed with the establishment of the Safavid Alhambra caliphate. Religious heterodoxy, combined with the power vacuum left by Chengiz Khan and his descendants, allowed for the emergence of a number of unique Turcoman states in Western Asia, the most famous being the Ottoman Turks of Anatolia. By 1500, innovators in military technology and the paper-making industry allowed for the emergence of centralized and bureaucratically-organized ‘gunpowder’ empires in eastern and western Asia. This course will address the three most significant of these: the Ottoman Turks (based in Istanbul), the Safavid Persians (based in Isfahan), and the Mogul Indians (based in Delhi). Areas of focus will include issues of political legitimacy, use of military ‘slave’ corps, orthodoxy and popular religious movements, tensions between rural and urban segments of society, innovations in cultural expression (poetry, art, architecture), scientific and philosophical development, and the penetration and impact of the Portuguese, English, Dutch, and French ‘world economies’ into Asia and the Indian Ocean. This course will also examine different debates regarding the ‘decline of the East’, and introduce the theoretical implications of how the Islamic world is approached by contemporary scholarship. FORMAT: Lecture/discussion PREREQUISITE: HIST 2501.03 or HIST 2502.03 or HIST 2503.03 or HIST 2504.03 or CLAS 1010.06 CROSS-LISTING: COM 3510.03, HIST 5505.03, RELS 3510.03

HIST 3511.03: Ancient and Medieval History of the Persianate World. This course is dedicated to studying those periods from antiquity to the medieval age when parts of Asia were influenced and defined by the Persian language and culture (i.e. Iran, the Caucasus, the Steppe, Mesopotamia, Central Asia, Anatolia, South Asia). This course will begin with examining the Achaemenid invasions of the 2nd Millennium B.C.E., and the eventual establishment of the Medes and Achaemenid empires in the 7th – 6th centuries B.C.E. The Persian Wars between the Persians and the Greeks, and the continuation with Alexander the Great's invasion and the establishment of a Hellenistic state in the 4th-3rd centuries B.C.E. will be studied along with various issues associated with ancient Iran and Central Asia (Zoroastrianism, Manichaeism, Nestorian Christianity, Buddhism) during the Achaemenid, Seleucid, Parthian, and Sasanian periods. This course will also examine the impact of the Arab Muslim invasions on Iran and Central Asia in the 7th, 8th, and 9th centuries, and the incorporation of Persian civilization into the growth and success of Islam during the Abbasid period (750-1258). Strong emphasis will be placed on examining various aspects of Persianate culture, namely poetry, literature, art, architecture, philosophy, and mysticism in the medieval period. FORMAT: Lecture/discussion PREREQUISITE: HIST 2501.03 or HIST 2503.03 or CLAS 1010.06 CROSS-LISTING: CLAS 3502.03

HIST 3512.03: Modern History of Iran. This course will examine Iran from the 19th to the 21st centuries. It will begin with an examination of the Qajar dynasty and its responses to the imperial ambitions of Russia and England in the late 19th and early 20th centuries. In terms of Iranian domestic politics, we will look at the Constitutional Revolution of 1906, the rise and establishment of the Pahlavi regime, and the emergence of Iranian politics in an era of hegemonic competition and the subsequent CIA-orchestrated coup d'état in 1953. Particular focus will be placed on Reza Shah's monarchy, and the implications of the Revolution in 1979, not only in Iran, but throughout Afghanistan, Pakistan, and the Gulf Region. This
The seminar examines the French Revolution, its origins and its interpretations, as well as the legacy of the French Revolution for modern political culture. Each term the seminar is offered it may focus on a specific theme related to the French Revolution.

CROSS-LISTING: HIST 3045.03

PREREQUISITE: One European history course

EXCLUSION: HIST 3004.03, 3009.03

FORMA T: Lecture/tutorial

HIST 4040.03: Social History Seminar.

This is an advanced seminar on the history of Soviet Russia from 1917 to 1991. We will explore the origins, mechanisms, costs, and outcomes of perhaps the most ambitious and tragic historic experiment at creating a modern yet equitable society in a country far from conducive to such an undertaking.

CROSS-LISTING: RUSN 4090.03

FORMA T: Lecture


This course explores the nature and development of the English criminal justice system during the period in which it first began to be exported to other areas, and at home had to deal with the turmoil wrought by reformation, war, and industrialization. This course will examine the uses of the law — did it act in the interests of particular people or groups, and if so, how? Historians have argued that the law had both coercive and symbolic purposes — that it served to enforce and legitimate social and economic structures. We will examine those arguments and their implications. Classes will progress thematically rather than chronologically; some will be devoted to a particular type of punishment, some to the different groups of people involved in the legal process, and others to historical debates.

CROSS-LISTING: RUSN 4090.03

FORMA T: Lecture

HIST 4030.03: Medieval Civilization.

This course will explore major themes in the history of the 9th and 20th centuries. Topics discussed will vary from year to year, but the course will involve an in-depth examination of a selected subject in modern history, and may include an historiographical, comparative, or interdisciplinary dimension.

CROSS-LISTING: HIST 3030.03

EXCLUSION: HIST 4004.03 in 2006-07

FORMA T: Lecture/seminar

HIST 3900.03: In Search of the Philosopher’s Stone: The History of European Alchemy.

This course will explore major themes in the history of medieval Europe. Some prior knowledge of medieval European history is essential. Discussions are used to unravel contentious or difficult aspects. Students are required to contribute to such discussions and to write one major research paper. Some prior knowledge of medieval European history is essential.

CROSS-LISTING: HIST 4061.03

EXCLUSION: HIST 4045.03

FORMA T: Seminar

HIST 4045.03: The French Revolution.

This course will explore major themes in the history of medieval Europe. Some prior knowledge of medieval European history is essential. Discussions are used to unravel contentious or difficult aspects. Students are required to contribute to such discussions and to write one major research paper. Some prior knowledge of medieval European history is essential.

CROSS-LISTING: HIST 5704.03

EXCLUSION: HIST 3040.03, 3009.03

FORMA T: Lecture

HIST 3551.03: Topics in Modern History.

This is a course of individual instruction. Students may only register for this course with the written permission of a Faculty member and the Undergraduate Coordinator.

CROSS-LISTING: HIST 5701.03

PREREQUISITE: Any course in European history course,

EXCLUSION: First-year students.

FORMA T: Lecture/discussion

HIST 4004.03: Crime and Society in Post-Conquest England.

This course explores the development of the criminal law in England between 1066 and 1300. After some introductory lectures on the legacy of Anglo-Saxon legal notions and the creation of the royal system of justice known as the “eye,” attention is given to a study of the development of a more sophisticated hierarchy of courts: the local tribunals presided over by justices of the peace and sheriffs, intermediate sessions headed by the justices of assays, and the central court of the King’s Bench. The origins and elaboration of particular offenses, including treason, felony (murder, rape, arson, burglary, and larceny), and trespass are examined. Emphasis is placed on the social aspects of crime in medieval England, and extensive use is made of recent periodical literature dealing with crime and its effect in this period (der(07)). Students are required to contribute to weekly discussions of these materials and to write one major research paper. Some prior knowledge of English history is essential.

CROSS-LISTING: HIST 5701.03

FORMA T: Lecture/seminar

HIST 3515.03: Food for Thought: History and the Culinary Cultures of the Islamic World.

The seminar explores aspects of Islamic history through the lens of the culinary cultures in Muslim societies. It treats food as an essential factor in creating and shaping identities, social space and political discourse.

CROSS-LISTING: HIST 3045.03

PREREQUISITE: HIST 2502.03 or HIST 2503.03 or HIST 2504.03

EXCLUSION: HIST 3004.03, 3009.03

FORMA T: Lecture/discussion

HIST 3920.03: Flesh and Bones in the British Atlantic.

We will explore the origins, mechanisms, costs, and outcome of perhaps the most ambitious and tragic historic experiment at creating a modern yet equitable society in a country far from conducive to such an undertaking. We will explore the origins, mechanisms, costs, and outcomes of perhaps the most ambitious and tragic historic experiment at creating a modern yet equitable society in a country far from conducive to such an undertaking.

CROSS-LISTING: RUSN 4090.03

FORMA T: Lecture

HIST 4061.03: Prelates, Peasants and Primates: From Italian History to the Behavioral Sciences.

This is an advanced seminar on the history of Soviet Russia from 1917 to 1991. We will explore the origins, mechanisms, costs, and outcomes of perhaps the most ambitious and tragic historic experiment at creating a modern yet equitable society in a country far from conducive to such an undertaking.

CROSS-LISTING: RUSN 4090.03

FORMA T: Lecture

HIST 4001.03: Prelates, Peasants and Primates: From Italian History to the Behavioral Sciences.

This is an advanced seminar on the history of Soviet Russia from 1917 to 1991. We will explore the origins, mechanisms, costs, and outcomes of perhaps the most ambitious and tragic historic experiment at creating a modern yet equitable society in a country far from conducive to such an undertaking.

CROSS-LISTING: RUSN 4090.03

FORMA T: Lecture
studied include the social structure of early Stuart England; the Church and its critics; foreign policy; radical politics; the military course of the war; religious sectarianism and the impact of the war and its aftermath on the populace.

**FORMA T:** Seminar

**CROSS-LISTING:** HIST 5106.03

**HIST 4117.03:** Winston Churchill.

This course is not designed to examine every aspect of Winston Churchill's life; rather, it focuses on major events in British and world history in which Churchill was a leading actor. Subjects for discussion may include: social reform and the welfare state; the return to the gold standard; Ireland; India, empire and decolonisation; appeasement; grand strategy in the two world wars; the Anglo-American "Special Relationship"; and the Cold War. This course will also examine the historiography of these subjects and the impact of Churchill's own extensive writings in shaping the historical record.

**FORMA T:** Seminar

**PREREQUISITE:** HIST 3050.03 or permission of the instructor

**HIST 4162X/Y.06:** Advanced Seminar in Baroque Culture.

Taught at the State Castle, Cesky Krumlov in the Czech Republic, this course offers upper-level students in History, Theatre and related disciplines the opportunity to study European Baroque culture while surrounded by its material traces. Topics covered include: seventeenth- and eighteenth-century theatre and opera; Baroque court life and the history of Central Europe. NOTE: Credit can only be given for the course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

**FORMA T:** Lecture/tutorial

**CROSS-LISTING:** THEA 4733.03, HIST 4162.03

**HIST 4370.03:** The American Revolution.

This course examines the American Revolution and the larger revolutionary era in the Atlantic World. It situates this critically important event in American history within the broader context of the Atlantic World. We will explore the origins of the Revolution and discuss its immediate impact on the British Empire and the colonies which became the new United States. We will examine the military conflict that led to American independence as well as the major ideological and social shifts that were part of the Revolution. We will try to determine the motivations of the various colonies in joining the Revolution and we will ask why not all successful colonies chose to revolt. We will conclude with the creation of the Constitution. We will explore the meaning of the revolution and American independence for the various groups of people in the colonies, including colonial officers, women, Native Americans and African-Americans. We will also examine the Loyalists and the Loyalist diaspora. Throughout the course we will try to determine how revolutionary or radical this event was.

**FORMA T:** Seminar

**CROSS-LISTING:** HIST 5255.03

**HIST 4400.03:** Topics in African History.

This course will undertake a careful, in-depth examination of a select theme in African history. The theme will vary from year to year, but the aim will be to probe the deep complexities of Africa's past that recent scholarship is bringing to light. Themes may be regional or continental, and could include such topics as witchcraft, resistance, urban history, religious change, migration, or nationalism. The core of the work will be a significant research paper and seminar presentations. Classes will also involve the reading, presentation, and discussion of selected readings.

**FORMA T:** Seminar

**PREREQUISITE:** At least one third-year African history course or permission of the instructor

**HIST 4401.03:** State Violence, Communal Conflict and Criminality in Modern South Africa.

South Africa is plagued by one of the world's highest rates of violent crime and social conflict. Despite the unprecedented level of public concern with violence,
little attention is paid to the historical origins of this phenomenon. This course explores the changing patterns of crime and violence since the 1890s.

**HIST 4404.03: Crime and Punishment in Modern Africa.**
This course will explore the extent to which state legitimacy and power can illuminate the trajectories of crime, policing and punishment from early colonial era to Africa to the present day.

**HIST 4475.03: African Intellectuals and the Modern Experience.**
African thinkers have long pondered the challenges of the modern era, and have established lines of thought with which African intellectuals now address Africa's profound problems. But this engagement with the modern world has moved through different phases, just as the social location of the African intellectuals has changed over time. This course will explore this intellectual history by setting specific writers in context, and then examining their original writings to ponder such questions as: Whose were the roots of “African Christianity?” How did African intellectuals respond to “scientific” racism? What was the appeal of Pan-Africanism? What was Negritude? How secular was African socialism? How do postmodern insights about the invention of identity affect the idea of being “African”?  

**HIST 4500.03: Topics in Modern History.**
This seminar is intended for senior undergraduate and graduate students interested in discussing how scholarship has historically approached non-Western and non-Christian areas of the globe. Dating back to Herodotus, Plato, and Isocrates, the seminar will examine the different European intellectual traditions of early modern Europe and how they laid the foundation for subsequent 19th and early 20th-century characterizations of the Islamic world. Concurrently, however, there is evidence that a discourse of “Orientalism” emerged among Muslim scholars and theorists, and the ensuing dialectic between West and East framed the introduction of a number of [Western] and religious ideologies to the Middle East, Iran, Central Asia, and India. There will be readings and discussions of a number of different scholars and theorists - Foucault, Chakrabarty, Said - who have commented on these discourses. Equal attention will be given to those Muslim scholars - Shaysghun, Soroush, al-Ahmad - who have written and commented on these dynamics between Western and Islamic civilization.

**HIST 4545.03: Scripture and Statecraft: History of Arab Intellectuals and Their Ideologies in the Modern Period.**
This course is dedicated to understanding how Arab-centric tribal relations and communities.

**HIST 4510.03: Topics in Islamic and Middle East History.**
This is a special course dedicated to a topic dealing with the Islamic world/Middle East from the medieval era to the present. Topics will vary, but possible course themes include: political thought in Islam, slavery in Islamic civilization, nationalism and ethnicity in the Middle East, and Women in the Islamic world.

**HIST 4545.03: Scripture and Statecraft: History of Islamic Political Thought.**
This course is dedicated to understanding how Arab-centric tribal relations and networks initially defined Islamic politics in 7th-century Arabia, and how these definitions were later influenced by external “Imperial” and “Karen” traditions (from Byzantines, Iranians, Indians). Muslim concepts of authority, however, were and still are defined by prophetic genealogies and charisma, and parts of this course will examine the Shi’ite discourse of imamate and the growth of millenarian thought. This course will also focus on the changes in political philosophy as a result of the violent arrival of the Mongols, and how traditional Sunnis notions of authority and state were displaced by the rise of Shi’i Iran and Safavid. Discussions will also focus on Muhammad ibn Abd al-Wahhab and Jamil al-Din al-Afghani and the extent to which Islamic political thought evolved and roused in the wake of European hegemonistic imperialism. The remainder of the course will examine the rise of Islamism, its radicalization following World War Two, and the implications of Islamism and its opponents against the backcloth of the Islamic Revolution in Iran and other religious-political movements in the Middle East, Africa, and South Asia.

**HIST 4550.03: Orientalism and Occidentalism.**
This seminar is intended for senior undergraduate and graduate students interested in discussing how scholarship has historically approached non-Western and non-Christian areas of the globe. Dating back to Herodotus, Plato, and Isocrates, the description of “the Other” has been a constant theme in European history and academic traditions. Whether or not it was the apologetically theological rivalry between Islam and Christianity in the Middle Ages, or the Humanist mantra for non-European languages and ethnography, Occidental scholarship has historically been attracted to understanding and defining the non-Occidental. This course will examine the different European intellectual traditions of early modern Europe and how they laid the foundation for subsequent 19th and early 20th-century characterizations of the Islamic world. Concurrently, however, there is evidence that a discourse of “Orientalism” emerged among Muslim scholars and theorists, and the ensuing dialectic between West and East framed the introduction of a number of [Western] and religious ideologies to the Middle East, Iran, Central Asia, and India. There will be readings and discussions of a number of different scholars and theorists - Foucault, Chakrabarty, Said - who have commented on these discourses. Equal attention will be given to those Muslim scholars - Shaysghun, Soroush, al-Ahmad - who have written and commented on these dynamics between Western and Islamic civilization.

**HIST 4555.03: A Dream Palace or a Bitter Reality: Arab Intellectuals and Their Ideologies in the Modern Period.**
From Ottoman reformists to European colonialism, from the creation of the state of Israel to the invasion of Iraq, Arab intellectuals have been constantly evaluating the weight of the past, the promise of the future. This course examines the ideas and ideals of Arab intellectuals of Muslims, Christian and Jewish background and those who reside in the Arab world as well as those who have made their careers in the West.

**HIST 4600.03: Topics in Late Nineteenth- and Twentieth-Century American and British History.**
This seminar is dedicated to understanding how Western colonialism and modernity, including the pan-American movement, the outlying political and ideological influences of the West, and the historical origins of this phenomenon. This course will examine the role of state legitimacy and power can illuminate the trajectories of crime, policing and punishment from early colonial era to Africa to the present day.

**HIST 4613.03: Women’s Suffrage from the French Revolution to World War I.**
The question of women’s participation in representative government first emerged during the French Revolution but by 1914, only two European countries had granted women the right to vote. This seminar explores the suffrage movement in the nineteenth century and the obstacles in the process of women’s enfranchisement.

**HIST 4614.03: Topics in the History of Sexuality.**
This seminar is intended for senior undergraduates. The specific content of the course varies from year to year, with a general focus on comparative, historical, and theoretical issues relating to the history of sexuality. Topics may include: the rise and fall of schools of sexology as embodied by Ellis, Freud, and Kinsey; sexual violence and harassment; the commodification of sexuality; the history of the body, sexuality and colonialism, gay and lesbian subcultures; and the intersection of class, race, and gender in sexual experiences, discourses, and communities.

**HIST 4650.03: Orientalism and Occidentalism.**
This seminar is intended for senior undergraduate and graduate students interested in discussing how scholarship has historically approached non-Western and non-Christian areas of the globe. Dating back to Herodotus, Plato, and Isocrates, the description of “the Other” has been a constant theme in European history and academic traditions. Whether or not it was the apologetically theological rivalry between Islam and Christianity in the Middle Ages, or the Humanist mantra for non-European languages and ethnography, Occidental scholarship has historically been attracted to understanding and defining the non-Occidental. This course will examine the different European intellectual traditions of early modern Europe and how they laid the foundation for subsequent 19th and early 20th-century characterizations of the Islamic world. Concurrently, however, there is evidence that a discourse of “Orientalism” emerged among Muslim scholars and theorists, and the ensuing dialectic between West and East framed the introduction of a number of [Western] and religious ideologies to the Middle East, Iran, Central Asia, and India. There will be readings and discussions of a number of different scholars and theorists - Foucault, Chakrabarty, Said - who have commented on these discourses. Equal attention will be given to those Muslim scholars - Shaysghun, Soroush, al-Ahmad - who have written and commented on these dynamics between Western and Islamic civilization.
HIST 4639.03: Britain, Appeasement, and the Origins of the Second World War.

This course examines Britain’s response to the rise of expansionist regimes in Germany, Italy, and Japan during the 1930s. Topics of discussion will include: the historical “roots” of appeasement; Neville Chamberlain and the Munich Conference; the Foreign Office; the Treasury; the armed services and British rearmament; the press and public opinion.

FORMA T: Seminar
PREREQUISITE: One previous British history course

HIST 4980.03: Reading and Writing “Postmodern” "History".

According to a number of post-modern theorists we have now reached the “end of history.” History, they argue, is as it is now taught at Dalhousie University, and many other universities around the world, is a dead or dying field of study. Taking this assumption as a starting point this course is designed to explore what alternative accounts of the “before now” could look like. The course itself consists of three parts. The first part will concentrate on some of the key ideas behind “postmodern” theory. In the second part we will examine various historical studies written by both modern and postmodern historians in order to understand the differences between the two interpretive approaches. In the third part of the course you will have the opportunity to write and present your own papers on the before now. You will do so by participating in an act of intellectual disobedience whereby you will reject many of the current rules of writing history in order to create your own "uncompromising, emancipatory message."

FORMA T: Seminar
PREREQUISITE: Fourth year history course

HIST 4988X/Y.06: The Varieties of History.

This course, reserved for fourth-year Honours students in History, is a seminar that examines questions concerning the nature and value of historical enquiry that have occupied thinkers since ancient times. Through a series of wide-ranging readings it explores the meaning of history in the context of European and non-European societies and the paradigms by which, through the ages, scholars have approached the study of the past.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMA T: Seminar
PREREQUISITE: Concurrent enrollment in HIST 4990X/Y, or instructor’s permission

HIST 4987.03: The Historiography of American Foreign Relations, 1776-1945.

This course is designed to introduce students to the history of American foreign policy from the Revolutionary War until World War Two. However, special emphasis will be given to events in contemporary American history, focusing on questions of interpretation and methodology. Toward this end, the seminars are designed to introduce students to both the historiography of the event under question and to some of the “theories” historians have used to interpret American foreign policy. The goal of the course is to provide students with the necessary tools to think critically about various forces at work in the development and execution of contemporary US policy.

FORMA T: Seminar
PREREQUISITE: A third-year 20th Century American History course

HIST 4988.03: The Historiography of American Foreign Relations Post-1945.

This course is designed to introduce students to the history of American foreign policy from the Origins of the Cold War to the demise of the Soviet Union. Rather than concentrating solely on the events as they unfolded, however, this course will focus on questions of interpretation and methodology. Toward this end, the seminars are designed to introduce students to both the historiography of the event under question and to some of the “theories” historians have used to interpret American foreign policy. The goal of the course is to provide students with the necessary tools to think critically about various forces at work in the development and execution of contemporary United States policy.

FORMA T: Seminar
PREREQUISITE: A third-year 20th Century American History course

HIST 4990X/Y.06: Honours Essay in History.

All History Honours students and those in combined Honours programs in which History is their principal subject must write a substantial essay on a topic to be chosen in consultation with the undergraduate coordinator and an individual faculty supervisor.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMA T: Honours Essay
PREREQUISITE: Admission to History Honours Programme
History of Science and Technology

Location: University of King’s College
Halifax, NS   B3H 2A1
Telephone: (902) 422-1271
Fax: (902) 422-5357

Director
Stewart, L., BSc (Toronto), MA (Toronto), PhD (Toronto)

Teaching Staff at the University of King’s College
Brooke, R., BSc (McGill), MA, PhD (London)
Frappier, M., BScA, MA (Laval), PhD (Western)
Fraser, M., BA (Dalhousie), MPhil, PhD (Cambridge)
Levy, G., Dipl. (Pr anteberg), Dr rer nat (Darmstadt)
McDougall, G., BA, MA, PhD (Toronto)
Mills, E., BSc (Calgary), MD, PhD (Yale)
Snobelen, S., BA (Toronto), MA (Victoria), MPhil, PhD (Cambridge)
Stewart, L., BSc (Toronto), MA (Toronto), PhD (Toronto)

I. History of Science and Technology Program

The natural and human sciences play a central role in shaping fundamental aspects of our contemporary intellectual and material culture - how we live and the ways we think and talk about how we live. And this has been true, in varying ways, for a very long time. The History of Science and Technology (HOST) Program explores that long history and as such contributes to student’s understanding of their contemporary world through understanding this vital aspect of our intellectual past. Our program is truly interdisciplinary in that we encourage students to cut across the sciences and the humanities by drawing on historical, philosophical and sociological disciplines. HOST courses are open to any student registered either at Dalhousie University or the University of King’s College. We also welcome visiting students (attending on a Letter of Permission) from other universities.

Our three “core” courses (mandatory for the Combined Honours degree) cover in depth the key ideas, questions, figures and developments in the history of science for the historical periods of ancient and medieval, the early modern and the modern, respectively, always with an eye to how the study of nature has been situated within broader historical contexts. Our numerous electives branch out in a myriad of questions and topics throughout these periods, such as the relationship between science and religion, the representations of science in the media, and the role of technologies in shaping human experience.

HOST will be of interest to many kinds of students. In particular, students with a strong interest in the role of technologies in shaping human experience.

II. Degree Options

Students registered in the BA or BSc degree at either King’s or Dalhousie have two options for pursuing a degree in the HOST program: (a) as a Combined Honours degree, and (b) as a Minor. Students in the BJH program may pursue the Combined Honours or take electives in HOST.

A. Combined Honours

The Combined Honours BA or BSc degree in HOST is offered jointly by Dalhousie University and the University of King’s College. Pursuing an honours degree requires of students a higher quality of work than is required by the other undergraduate programs (such as the 20 credit major). Able and ambitious students are urged to take the Combined Honours in HOST; particularly if you want to leave open the possibility of doing graduate work in the future. Adjudicating holds in graduate schools (for both scholarships and program admissions) will look more favorably on students with Honours-level degrees. In some cases the Honours degree is a requirement. In any case, choosing the Combined Honours degree is a positive statement concerning your seriousness and abilities as a student.

The Dalhousie departmental-offering within the History of Science and Technology Program include the other honours subject, a number of possible electives, and certain cross-listed courses. The other honours subject must be selected from the following list of Dalhousie departments and Programs: Classics, Creative Writing, English, French, Gender and Women’s Studies, German, History, International Development Studies, Music, Philosophy, Political Science, Religious Studies, Russian Studies, Sociology, Social Anthropology, Spanish and Latin American Studies, Theatre, Biochemistry, Biology, Chemistry, Computing Science, Earth Sciences, Economics, Marine Biology, Mathematics, Microbiology and Immunology, Neuroscience, Physics, Psychology, and Statistics. Electives may be taken in any of the above-mentioned departments and programs as well as in the following: Canadian Studies, Contemporary Studies, Early Modern Studies, Music, and Oceanography.

Students who are eligible to take an honours degree should apply to the History of Science and Technology Office and the other department or program concerned as early as possible, normally before registering for the second year. All students must meet the degree requirements for the College of Arts and Sciences as detailed in the Degree Requirements section of this calendar (page 122). Because it is an honours program, the quality of work required in the program is higher than that required in a 15 credit or 20 credit major program.

Students who are eligible to take an honours degree should apply to the History of Science and Technology Office and the other department or program concerned as early as possible, normally before registering for the second year. All students must meet the degree requirements for the College of Arts and Sciences as detailed in the Degree Requirements section of this calendar (page 122). Because it is an honours program, the quality of work required in the program is higher than that required in a 15 credit or 20 credit major program.

Applications for admission must be made to the Dalhousie department concerned and to the History of Science and Technology Office at King’s on forms available from the Registrar at Dalhousie or King’s. Students should apply to the program and seek advice on course selection before registering for the second year. If this is not done, it may be necessary to make up some work not previously taken. For each individual student, the entire degree program, including elective courses, is subject to supervision and approved by the Dalhousie department concerned and by a member of the History of Science and Technology teaching staff.

The joint Dalhousie/King’s History of Science and Technology Combined Honours Program is based on the general requirement that the full credits needed to graduate include:

1. In the case of a Combined Honours BA degree, a minimum of 11 and a maximum of 14 credits beyond the 1000 level in the two honours subjects, but not more than nine and no fewer than five full credits being in either of them. The larger number of honours credits must be in the science subject.

2. In the case of a Combined Honours BSc degree, a minimum of 11 and a maximum of 14 full credits beyond the 1000 level in the two honours subjects, with no more than nine and no fewer than five credits in either.

3. Two to four - depending on the number selected in the Honours subject - elective credits.

4. The three “core” courses in History of Science and Technology: HIST 2000/06, HIST 3000/06, HIST 4000/06.

5. One credit in a single language humanities subject (Degree Requirements section 1, page 122);

6. One credit in a single social science subject (See Degree Requirements section 2, page 122);

7. One credit in a single life or physical science subject (See Degree Requirements section 3, page 122);

8. One credit in a single language for Bachelor of Arts (see Degree Requirements, page 122).
FORMA T: Writing Requirement. Lecture/tutorial and how this has shaped the roles and responsibilities of modern engineers.

Through case studies this course examines the influence of the development of social, political, and economic institutions from ancient times to the first industrial revolutions in respect to the following are treated: I. Concepts of nature, II. Mathematics and Astronomy, III. Material and Elemental theories, IV. Biology and the Soul, V. The meaning of "nature".

NOTE: Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.

FORMAT: Lecture/seminar

HSTC 2011.03/HSTC 3011.03/HSTC 4011.03: The Lecture Series. In some years a lecture series course is offered. Students are allowed to take up to three courses, one for each year of upper-level study. Each course will consist of six to eight weekly evening lectures given by specialists from Atlantic Canada and beyond, and a weekly one-hour seminar. The lectures will offer students reflections on a number of contemporary issues and themes. Each year a different theme will be explored.

FORMAT: Seminar/reading lectures

HSTC 2105.03: The Life, Science and Philosophy of Albert Einstein. In 1999, Time Magazine named Albert Einstein "Person of the Century" for the impact his scientific work had not only on physics, but also on culture in general. In this course, we will explore how Einstein's proof of the existence of atoms, his belief in light particles (photons), and his application of the famous principle of relativization revolutionized both modern physics and philosophy. We will also pay attention to the main events of Einstein's life (his divorce, the rise of Nazism in Germany, etc.), Einstein's pacifism and Zionism, his attitude toward religion and his personal relationships with other scientists (Poincaré, Bohr, etc.) in order to better understand the personal, social and cultural contexts in which these revolutionary theories were developed.

NOTE: Prior knowledge of physics, mathematics, or philosophy is expected. This course is for everyone with interest in science, but is not a science course (mathematics will be kept at a minimum).

FORMAT: Lecture/seminar

HSTC 2120.03: Magic, Heresy and Hermeticism: Occult Mentalities in the Scientific Revolution. The "scientific revolution" is ordinarily construed as the triumph of reason over superstition, of science over magic. This course argues that the rhetoric of 'scientific revolution' conceals a deep continuity between modern science and the occult traditions of the Middle Ages and the Renaissance. The protéotype of the experimental scientist is the Faustian wizard. We investigate the role of Hermeticism, magic and the occult in the scientific revolution and the persistence of these current currents in later movements, from German Naturphilosophie to Jungian psychology.

FORMAT: Lecture/tutorial

CROSS-LISTING: HIST 2990.03, EMSP 2360.03

HSTC 2200X/Y.06: Ancient and Medieval Science. This course treats the study of nature in the ancient and medieval West by a combination of both thematic and chronological approaches. It considers the most general views of nature and science as well as specific developments within those general understandings. For the purposes of the course, the ancient and medieval West is divided into four time periods: the ancient, the Hellenistic, the Roman, and finally the medieval. Through the reading of selected works, developments in respect to the following are treated. 1. Concepts of nature, II. Mathematics and Astronomy, III. Material and Elemental theories, IV. Biology and the Soul, V. The meaning of "nature".

NOTE: Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.

FORMAT: Lecture/tutorial

HSTC 2200X/Y.06: Ancient and Medieval Science. This course treats the study of nature in the ancient and medieval West by a combination of both thematic and chronological approaches. It considers the most general views of nature and science as well as specific developments within those general understandings. For the purposes of the course, the ancient and medieval West is divided into four time periods: the ancient, the Hellenistic, the Roman, and finally the medieval. Through the reading of selected works, developments in respect to the following are treated. 1. Concepts of nature, II. Mathematics and Astronomy, III. Material and Elemental theories, IV. Biology and the Soul, V. The meaning of "nature".

NOTE: Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.

FORMAT: Lecture/tutorial
CROSS-LISTING: HIST 2074X/Y.06, HSTC 1200X/Y.06, SCIE 2000X/Y.06, SCIE 4000.03
EXCLUSION: HIST 2201.05, BIOC 3502.01, HSTC 3072.01, HSTC 4006X/Y.06, SCIE 4000.03

HSTC 2202.03: The Beginnings of Western Medicine: the Birth of the Body.

This course will look at how the body was viewed in ancient scientific theory and practice. Western medicine as a rationalised scientific practice finds its origin in the ancient Greek philosophical and medical texts attributed to "Hippocrates." Through a close reading of selected ancient medical texts, this course will explore ideas of how the human body is constituted, how it relates to the Cosmos as a whole, what the role of the physician was to be, and how illness and healing were seen as causes in the balance of the components of the body.

HSTC 2204.03: The Darwinian Revolution.

Arguably, the Darwinian Revolution marks the greatest revolution in our conception of nature and our place within it, deeply challenging received views on chance, teleology, history, the soul and nature. This course opens up the historical and philosophical background to the Darwinian revolution, the main episodes of that revolution and the consequences for contemporary moral, scientific and social thought. Emphasis will be placed on reading contemporary primary texts.

FORMAT: Lecture/seminar

HSTC 2205.03: Totalitarianism and Science.

The question of who has authority over funding, direction and priorities of modern science is a central political concern. This course considers the case of totalitarian states (URSS and Nazi Germany) and consists of two parts. Part I analyses the essential features of totalitarian regimes. Part II concentrates on the fortunes of particular sciences (medicine, biology, physics) under them.

FORMAT: Lecture/tutorial

CROSS-LISTING: HIST 2905.03, CTMP 2903.01

HSTC 2206.03: Bio-Politics: Human Nature in Contemporary Thought.

To what extent do biology and culture determine what it is to be human? Drawing on themes ranging from Foucault to Steven Pinker, this course will examine the recent political, moral and existential issues raised by attempts to answer that question. Topics will include socio-biology, evolutionary psychology, the construction of human kinds and the problem of free will.

FORMAT: Lecture/seminar

CROSS-LISTING: CTMP 2903.01

HSTC 2208.03: Science and Medicine in Islamic Societies, 700–1500.

Through a combination of primary and secondary source readings, this course explores some of the major trends and debates within science and medicine in late antiquity and the early Middle Ages. A special emphasis is placed on situating these developments within the larger political, social and institutional structure of Islamic societies.

FORMAT: Seminar

CROSS-LISTING: BIES 2208.03

HSTC 2310.03: Women and Gender in Early Modern Science.

This course will explore the roles of women, and questions about women's nature, in the development of Early Modern science. The course will consider several interrelated aspects of scientific culture in the sixteenth, seventeenth, and eighteenth centuries: first, we will look at the place of women in the scientific institutions of the time. Although women were, for the most part, excluded from universities and scientific academies, some women were able to do scientific work through their participation in salons and court guilds. The second part of the course will look at the contributions of some particular women to the fields of physics, astronomy, botany, and medicine. We will first examine how science interpreted sex and gender. We will pay special attention to the biological sciences and their treatment of sex differences, conception, and generation. We will consider here, how these biological theories were influenced by, and at the same time served to uphold, various social and cultural structures. Finally, we will explore the ways in which gender and nature were portrayed in the broader cultural context. We will, for example, discuss the ways in which women appeared as scientists and as symbols of science in art and literature.

FORMAT: Film screening/Discussion

CROSS-LISTING: EMBP 2310.03, GWST 2310.03

HSTC 2340.03: The Origins of Science Fiction in Early Modern Europe.

In 1500, literate Europeans lived in a bounded, geocentric universe. By 1800, the sun had replaced the earth at the centre of a limited planetary system constrained to infinite space. These changes prompted early modern philosophers, scientists and writers to consider the possibility that the universe might contain a plurality of worlds. This course will explore the ways in which the "plurality" theme was developed in some of the earliest works of science fiction. We will consider this theme as it appears on stories of interstellar voyages, extraterrestrial visits, and encounters with extraterrestrial beings, paying special attention to the ways in which early modern writers used these tales to speculate on philosophical, political, and scientific issues.

FORMAT: Seminar

CROSS-LISTING: EMBP 2400.03

EXCLUSION: EMBP 2400.03

HSTC 2400.03: Science and the Media.

From the first Babylonian astronomical records on cuneiform to the public understanding of science on television, the various media have long been crucial to the success and spread of science. This course provides a history of science in the media from the ancient and medieval use of geometrical diagrams, astronomical figures and astronomical illustration through early modern printed texts, popular broadsheets and color historical plates all the way to the dialogues of science in literature, cinema and on the Internet. This expanding presence of science in the media is examined against the backdrop of three revolutions: literary, artistic (ancient and medieval worlds), mechanical (early modern period) and electronic (contemporary ages). Specific themes considered include the increasing scarcity of scientific illustration, the rise of scientific journals, public scientific demonstrations, science in poetry and prose fiction, science and art, radio and television documentaries, the advertising and marketing of science, scientific apocalypses and techno-utopias, biotech, Soviet era technological utopias, and science fiction as a vehicle for social and political commentary.

FORMAT: Lecture/seminar

CROSS-LISTING: SCIE 2000X/Y.06

HSTC 2500.03: Science Fiction in Film.

This course studies portrayals of science and technology in science fiction film. Themes examined include the "scary" scientist; science as malevolent versus science as salvation; the survival of humankind as a technological world and the contrary trend of dehumanisation in the face of advancing technology; scientific utopia and dystopia; science fiction as self-fulfilling prophecy; voyages into space and inter-space; time travel; computers and artificial intelligence; nuclear holocaust and environmental apocalyptic; alien life; genetic engineering and imagined technologies; and science fiction as a vehicle for social and political commentary. Films studied will include an introduction to science fiction from H.G. Wells The Time Machine (1895), H.G. Wells The War of the Worlds (1953), H.G. Wells The War of the Worlds (1953), H.G. Wells The Time Machine (1960), Solaris (1972), Blade Runner (1982) and The Matrix (1999). Film screenings will be supplemented with footage from civil defence films, government celebrations of science and technology along with science documentaries. Films will be accompanied in class by discussion and criticism and students will also read scholarly treatments of cinematic science fiction. Evaluation will be based on participation, written work and a final examination.

FORMAT: Film screening/Discussion

HSTC 3000X/Y.06: The Scientific Revolution.

This course examines the origins and meanings of the "Scientific Revolution". the term was used to describe the spectacular changes in world view in the 16th to 18th centuries when the sciences both reinterpreted and broke away from the received ancient and medieval world views. Surveying traditional and revisionist historiography, this course will explore the new conceptions of mechanism, the body, matter and motion that emerged in this period, along with the new methods of experiment and mathematical reasoning; the divergence in astronomy, biology and physics; and the rise of public and commercial science in the 18th century. The result of individual innovation, internal reform, the impact of other fields of thought and the appropriation of non-Western ideas and technologies, these shifts in outlook will be examined against the backdrop of the broader transformations that took place in culture, society, politics, religion and philosophy. Emphasis will be placed on reading the primary texts of notable figures such as Copernicus, Galileo, Descartes and Newton, as well as the activities of men and women who existed on the periphery of science, either by virtue of marginalization or by belonging to anti-scientific oppositional cultures.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture/seminar
HSTC 3011.03: The Lecture Series.
In some years a lecture series course is offered. Students are allowed to take up to three such courses, one for each year of upper-level study. Each course will consist of thirteen bi-weekly evening lectures given by specialists from Atlantic Canada and beyond. The lectures will offer students reflections on a number of contemporary issues and themes. Each year a different theme will be explored. FORMAT: Seminar/evening lectures

HSTC 3120.03: Distilling Nature’s Secrets: The Ancient Alchemists.
This course explores the scientific and esoteric currents which contributed to the rise of alchemy in the late Ancient World. This ‘sacred science’ of transmutation was a natural synthesis of Greek natural philosophy, Egyptian mysticism, and Near Eastern metallurgical technologies. The physical processes enacted in the alchemical laboratory were intended to transmute, purify, and transform – and were experienced intensely by the alchemist himself as a spiritual drama of death and resurrection, analogous to the rites of initiation in the mystery cults. Alchemy was thus a form of ritual technology, aimed simultaneously at the purification of self and cosmos. The texts studied in the course range from technical manuals preserved on papyrus, to the highly esoteric and visionary works of the Hermetic philosopher Panutius (circa 300 CE). The relationship between these technical and occult dimensions will be of central concern.
FORMAT: Lecture/seminar

HSTC 3121.03: In Search of the Philosopher’s Stone: The History of European Alchemy.
This course traces the development of alchemical theories and practices in the Medieval Latin West up to the emergence of early modern chemistry. It employs a multi-disciplinary approach which treats the scientific, technological, esoteric and iconographic dimensions of alchemy as interdependent. The entire development of European alchemy is covered from the transmission of the Greek and Islamic alchemical traditions in the 12th century up to Newton, whose alchemical theories represent a period of transition to early modern chemistry in one direction, and to a more spiritualised occult philosophy in the other. This course is independent of HSTC 3120.03. All students interested in the history of science, magic and mysticism are welcome.
FORMAT: Lecture/seminar

HSTC 3130.03: The Origins of Chemistry: From Alchemy to Chemical Bonds.
This course explores the scientific and social development of modern chemistry from the work of 17th century alchemists to the chemical revolution of Lavoisier and Dulong, the beginnings of organic chemistry and biochemistry, the development of the periodic table, and the modern understanding of atomic structure and chemical bonds. Nature: There is no pre-requisite for the course.
FORMAT: Lecture/seminar

HSTC 3150.03: Nature and History.
In the nineteenth and twentieth centuries, the study of the natural world and historical thought have been closely linked. Participants in the seminar will read texts which helped to define ideas in the area after the Enlightenment and consider how these ideas influenced, and were influenced by, developments in scientific thought. The seminar will consider how nature and history are related in idealism, historical materialism and the thinking of the evolutionists, and how this connection is present in Nietzsche, Foucault and Foucault.
FORMAT: Lecture/seminar

HSTC 3200.03: Science and Religion: Historical Perspectives.
Beginning with an overview of the history and methodology of the study of science and religion, encounters between science and religion are traced from the dawn of civilization to the end of the eighteenth century, with a special focus on the early modern period. From an examination of the biblical view of nature, idealism, historical materialism and the thinking of the evolutionists, and how this connection is present in Nietzsche, Foucault and Foucault. The course moves through a treatment of the centrality of theology to Medieval science on to natural theology and the “Watchmaker” Design Argument of the seventeenth and eighteenth centuries. Models of conflict, harmony and complementarity offered the possibility of treatments between science and religion as explored through case studies such as Galileo’s controversy with the Church and instances where religious belief informed scientific discovery. The role of the Church (including the Inquisition) in the development of early modern science.
FORMAT: Seminar

HSTC 3201.03: Science and Religion: Contemporary Perspectives.
Beginning with an overview of the history and methodology of the study of science and religion, encounters between science and religion are traced from the rise of Darwinism in the early nineteenth century to the contemporary postmodern age. From an examination of nineteenth-century “Scientific geology” and the religious impact of Darwin’s Origin of Species (1859), this course moves on to the contemporary topic as the religious interpretations of quantum mechanics, the Big Bang, the anthropic principle, medical science, biotechnology, evolutionary psychology, chaos theory, aesthetics in nature, science fiction and extra-terrestrial life (including SETI). Case studies of “conflict” emanating from Darwinism, the Scopes Trial and the on-going Creation-Evolution debates are contrasted with examples of harmony and interdependence between science and religion in the careers of 19th and 20th century scientists, along with phenomena like the new Intelligent Design (ID) movement. The religious scope of the course in intentionally wide-ranging, and examinations of science-religion interaction within native American, African and the Near Age spirituality are added to treatments of traditional eastern and western religion. Special features include a focus on primary texts, the use of film and guest lectures by scientists.
FORMAT: Lecture/seminar

HSTC 3212.03: The Biosphere: Global Perspectives in Science and Philosophy.
Intended for both science and humanities students interested in ecology, this course will focus on the historical, philosophical and methodological aspects of the concept of the biosphere in order to provide a picture of the history and actual state of affairs in the study of global ecology. We will address both purely scientific and philosophical topics such as the holism vs. reductionism debate; the compatibility of the global approaches with the most influential versions of contemporary Darwinianism (HTU, pre-Socratic “principles” of the biosphere), modelling nature in the modern global ecology and many others. FORMAT: Lecture/seminar

HSTC 3250.03: Going Wild: Exploring the Animal Nature of Humans.
The major focus of this course is the question of how and to what extent human evolutionary sciences can explain the diversity and unity of the “animal” animals – including the current course of the Western civilization. We will discuss the evolutionary foundations of romantic (i) love, suicide, sports, diets, and sexual self-identification.
FORMAT: Seminar/EXCLUSION: HSTC 3615.03

HSTC 3310.03: Hidden Worlds: Microscopy in Early Modern Europe.
Microscopes were introduced into Europe at the beginning of the seventeenth century. In the words of Robert Hooke, the microscope opened up a “new visible World” to the understanding — a strange new landscape populated by vast numbers of new creatures. This course will explore the influence the microscope, and the notes world that it opened up, in the development of early modern science. In the first part of the course, we will take a close look at early microscopy technology and its evolution in the seventeenth, eighteenth, and early nineteenth centuries. The second part of the course will explore the role of the microscope in the evolution of early modern science. We will, for example, consider the role of microscopy in the emergence of the new mechanical.
philosophy and the new experimental science. We will also discuss the histories of some scientific theories (for example, of contagion and generation) that made particular use of observations made with microscopes. Finally, the microscope's revelation of "new worlds" caused conceptual difficulties that perplexed scientists and philosophers alike. In the final part of the course we will consider the challenges that new kinds of experience raised for early modern philosophy, as well as the possible influence of philosophical debates on the acceptance of the new technology.

FORMA:T: Lecture/seminar

HSTC 3331.03: History of the Marine Sciences.

Oceanography did not take definitive form until late in the 19th century. Its roots lie in a number of currents, partly in ancient cosmologies and geography. In this course, the history of marine sciences, including oceanography, is traced from the ancients to the 20th century. The cosmologies of the ancient world, voyages of discovery from the 15th through the 18th centuries, the scientific revolution of the 17th century, the development of biology, physics, chemistry and geology in the late 18th and 19th centuries, all contributed to a gradual enlargement and transformation of human interest in the oceans. Since the late 19th Century, biological, physical, chemical and geological aspects of the marine sciences have grown nearly independently. The scientific, institutional, and social setting in which these nearly autonomous sub-disciplines developed is emphasized.

FORMA:T: Lecture 3 hours

CRoSS-LINiNG: HST 307/03, BIOC 4664/03, MARI 4664/03, OCEA 4311/03, 3311/03, SCIE 4001/03

ReSTRICTION: Restricted to 3rd year students and above.

HSTC 3411.03: Feminism and Science.

Science has been the subject of intense scrutiny by contemporary feminist theorists. The course will examine the various feminist critiques of natural science, as well as the positive proposals that feminism has brought to science and scientific culture. Questions that will be addressed include: Is the style of science gendered? Has feminism influenced the content of various sciences? How has science contributed to gendered constructions of nature? Is there such a thing as value-free scientific research? How do feminist theories of knowledge differ from traditional understandings of scientific knowledge and scientific objectivity? The readings for the course will include works by Donna Haraway, Sandra Harding, Evelyn Fox Keller, Helen Longino, and Hilary Rose.

FORMA:T: Lecture

CRoSS-LINiNG: GWST 3215.03, CTPM 3215.03

HSTC 3412.03: Hypatia’s Daughters: Women in Science.

From Hypatia to Hildegard von Bingen, from Mary Somerville to Marie Curie, to Evelyn Fox Keller, Helen Longino, and Hilary Rose. Readings for this course will include work by Donna Haraway, Sandra Harding, Evelyn Fox Keller, Helen Longino, and Hilary Rose.

FORMA:T: Lecture

CRoSS-LINiNG: GWST 3215.03, CTPM 3215.03

HSTC 3430.03: Experiments in the Mind: Thought Experiments in Physics.

Einstein’s relativity, Schrodinger’s cat, Maxwell’s demon, the history of physics is full of these instructive fictions that are thought experiments. This course examines the historical contexts of many thought experiments in order to understand the different roles they have played in the conceptual development of physics from Antiquity to the present.

FORMA:T: Lecture/discussion/seminar

HSTC 3501.03: The Nature of Time I.

This course will consider views of time beginning with Mesopotamian notions of narrative, Egyptian conceptions, and the encounter between linear and circular time in Athens. The course will then turn to the medieval period, through the thirteenth century, in Pre-Scientific thought, in Greek historical texts. The course will treat some central texts, in Plato on the concept of time in the soul, in Aristotle, whose
HSTC 4011.03: The Lecture Series
In some years the lecture series is offered, students are allowed to take up to three such courses, one for each year of upper-level study. Each course will consist of three to six weekly evening lectures given by specialists from Atlantic Canada and beyond. The lectures will offer students reflections on a number of contemporary issues and themes. Each year a different theme will be explored. FORMAT: Seminar/evening lectures

HSTC 4102.03: Topics in Ancient Natural Philosophy.
Through the full range of one selected ancient work, this course seeks to explore fundamental problems in ancient natural philosophy, such as: How did the ancients see their place in the Cosmos? How did ancient social values affect views of nature? How did the ancients view the 'natural' in antiquity? What are the limitations to textual evidence for ancient science? How did theories about the natural world inform theancient’s view of the 'real world' of technology will be invited to participate in the class. The course will be contextualising the debate by exploring the actual historical evolution of technology. Lectures will be devoted to presenting a social and historical background to the study of modern technologies while seminars will focus on the reading of primary texts in the field. FORMAT: Seminar

CROSS-LISTING: CTMP 4200.03

HSTC 4200.03: Philosophies of Technology I. From Techne to Technology.
This half-year course will explore the history, structure and associated problems of our coming to be technological, beginning with an elaboration of the concept of “techne” in the ancients and its modification in the technical arts and instrumental reasoning of the Enlightenment and of 19th century industrial ideology. Post-Enlightenment critiques polarized around the place of the machine and automation in Karl Marx and the “question concerning technology” in Martin Heidegger will then be examined, leading up to an examination of the present state of technological discourse. In each case, we shall mark the importance of contemporary technological developments by exploring the historical evolution of technology. Lectures will be devoted to presenting a social and historical background to the study of modern technologies while seminars will focus on the reading of primary texts in the field. FORMAT: Seminar

CROSS-LISTING: CTMP 4200.03

HSTC 4201.03: Philosophies of Technology II: The Questions Concerning Technology.
This half-year seminar will explore in detail the implications of powerful contemporary debates surrounding the meaning and future of technology. What do we mean by technology? Can there be a philosophy of technology? What are the political and cultural ramifications of going technological? Topics will include: philosophical determinism in history, feminist critiques, technology and development, the meaning of expertise, technology, art, and the "futurol" social construction of science as cybernetic theory, Donna Haraway’s concept of cybernetic culture and the "modern technological sublime." The course will be conducted in seminar format with particular emphasis placed on the elucidation of historical and contemporary case studies. Whenever possible, guest lecturers from the "real world" of technology will be invited to participate in the class. FORMAT: Seminar

CROSS-LISTING: CTMP 4201.03

HSTC 4300.03: Nature and Romanticism.
Kant’s “Copernican Revolution” in philosophy, ironically, marked a resurrection of a full-blown “idealistic” philosophy of nature. This course will investigate the attempts of Kant’s followers to construct a natural philosophy and its engagement with the rival mechanical world picture. It explores the implications of this endeavour for the growth of romanticism, vitalism and our modern picture of “nature”. It begins with an examination of the ambiguous heritage presented by Kant’s writings on nature and proceeds through the attempts to develop a complete program of idealistic Naturphilosophie and its spread throughout European thought by the medium of romantic art and natural philosophy. FORMAT: Lecture/ Tutorial

CROSS-LISTING: HST 5004.03, EMSP 4300.03

HSTC 4400.03: Newton and Newtonianism.
This seminar involves a close study of the work of Isaac Newton, along with that of his supporters and detractors. Beginning with an overview of pre-Newtonian science, topics range from Newton’s rejection of Cartesianism through his contributions to mathematics, physics, astronomy and optics, along with his inductive scientific method, laws of motion and calculus priority dispute with Leibniz. Also considered are lesser-known aspects of his career, such as his secretive pursuit of alchemy, his biblical theology, his attempts to save the Apocalypse, his role in British statecraft and his autocratic rule of the Royal Society. A taxonomy of the forms of Newtonianism that emerged after Newton’s death also allows an exploration of iconographical and apologetic uses of Newton, and his differing legacies in the Britain and France. This seminar concentrates on primary readings, including Newton’s Principia (1687), Opticks (1704), his alchemical treatises and unpublished theological papers, as well as the Leibnitz-Clarke correspondence (1717), anti-Newtonian and eighteenth-century popularizations of Newtonianism such as Voltaire’s Philosophical Letters (1733) and Macaulay’s Account of Newton’s Discoveries (1748). Attention is paid to the social, cultural and political aspects of Newtonianism and our modern picture of science is required. FORMAT: Seminar

CROSS-LISTING: EMSP 4310.03

HSTC 4500X/Y.06: Honours Seminar in the History of Science and Technology.
This seminar is specifically intended for students in the Combined Honours Degree in History of Science and Technology and will meet the requirements of the 210 credit. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

HSTC 4510.03: Independent Readings in History of Science and Technology.
Independent reading courses will be offered annually. The student is assigned to a member of staff for regular meetings to discuss readings in a selected area. Papers and research projects are expected. FORMAT: Individual instruction

PREREQUISITE: Honours registration in History of Science and Technology, permission of instructor and Director of program. Students must complete 60 credit hours before registering in this course.

HSTC 4511.03: Independent Readings in History of Science and Technology.
Independent reading courses will be offered annually. The student is assigned to a member of the staff for regular meetings to discuss readings in a selected area. Papers and research projects are expected. FORMAT: Individual instruction

PREREQUISITE: Honours registration in the History of Science and Technology, permission of the instructor and the Director of the program. Students must complete 60 credit hours before registering in this course.

HSTC 4515.06: Independent Readings in History of Science and Technology.
Independent reading courses will be offered annually. The student is assigned to a member of the staff for regular meetings to discuss readings in a selected area. Papers and research projects are expected. FORMAT: Individual instruction

PREREQUISITE: Honours registration in the History of Science and Technology, permission of the instructor and the Director of the program. Students must complete 60 credit hours before registering in this course.

HSTC 4550X/Y.06: Honours Thesis in the History of Science and Technology.
In this course the student is assigned to a member of staff for regular meetings to discuss readings and present research for the purpose of completing an honours thesis in the History of Science and Technology. Successful completion of HSTC 4550X/Y.06 gives students both their 210 and 215 credit.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

PREREQUISITE: Honours registration in the History of Science and Technology, permission of the instructor and the Director of the program.

History of Science and Technology 259
International Development Studies

Location: Henry Hicks Academic/Administration Building 4290 Kent Street, Room 319
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 496-3814
Fax: (902) 496-2108
Email: IDS@dal.ca
Website: http://www.dal.ca/ids

Dean
Summersby-Murray, R., AsCL Dip (Trinity College, London), BA, MA (Canterbury), PhD (Essex)

Chair
Cameron, J., BA (Vini), MA (SFU), PhD (York)

Undergraduate Advisors
Schmiec, Matthew A., BSc (Hons) (Queen’s), MA (School of Oriental and African Studies), PhD (UBC)
Email: matthew.schmiec@dal.ca
Mackinnon, M., BA (MSVU)
Email: mariam.mackinnon@dal.ca

Administrator
Mackinnon, M. Email: marian.mackinnon@dal.ca

Professors Emeriti
Pettig, J. L., BA (Brować), MA, PhD (Boston)

McAllister, R. I.

Shaw, T. M.

Sinclair, A. (Economics)

Thomson, V. (Sociology and Social Anthropology)

Wright, G. R. (Political Science)

Associate Professors
Cameron, J., BA (Vini), MA (SFU), PhD (York)

Mannathukkaran, N., BA (Bangalore, India), MA (Jawaharlal Nehru, India) PhD (Queen’s)

Schmiec, Matthew A., BSc (Hons) (Queen’s), MA (School of Oriental and African Studies), PhD (UBC)

Assistant Professors
Broster, Alana, BA, MA (Lon), PhD (UQAM)

Harms, Robert, BA, MA (Queen’s), PhD (SFU)

Ulicki, T., BA (McGill), MA (SME), PhD (Imus)

Co-Appointed Faculty
Adil, Sara (History)

Arthur, P. (Political Science)

Black, D. (Political Science)

Chervey, A. (Law Marine Affairs)

Cotie, S.J. (History)

Dundie, M. (Political Science)

Dubas, L. (Sociology and Social Anthropology)

Farr, K. (Political Science)

Finbow, R. (Political Science)

Fitting, E. (Sociology and Social Anthropology)

Ghadjar, J. (Health and Human Performance)

Gardner Barber, P. (Sociology and Social Anthropology)

Ghazal, Ama (History)

Harvey, P. (Political Science)

Boyle, A. (Political Science)

Jackson, I. (Health and Human Performance)

Kanthamar, J. (Social Work)

Kerk, J. (Spanish and Latin American Studies)

Kyslich, H. (History)

Lam, H. (Biology)

Lasser, B. (Economics)

McAule, G. (History of Science and Technology)

Murphy, B. (School of Occupational Therapy)

Narita, R. (French)

Murphy, C. (Sociology and Social Anthropology)

Noble, B. (Sociology and Social Anthropology)

Oxley, R. (Sociology and Social Anthropology)

Pale, F. (Architecture and Planning)

Ramos, H. (Sociology)

Teague, S. (Health and Human Performance)

Vander Zong, D. (Law)

Weight, T. (College of Sustainability)

Yoshida, Y. (Sociology and Social Anthropology)

Zacherick, P. (History)

Adjunct Professors
Barbier, B. (NSCAD)

France, S. (Calgary)

Fletcher, J. (ICU)

Kame, D. P. (Dalhousie)

McAllister, R. J. (Economics)

O’Malley, A. (SMU)

Shaw, T. M.

Thimmumpillan, J. (MSVU)

Vellumay, R. (SMU)

I. Introduction

International Development Studies is an interdisciplinary program involving the study of poverty, inequality, social change and justice in a global context. The IDS program is structured around two broad axes: development theory/ practice, and the global local. Areas of teaching expertise among the core faculty in IDS include: development theory, gender, culture, human security, rural development, migration, health, Indigenous peoples, participatory development and global citizenship. Additional areas of expertise are drawn from over 40 cross-appointed and adjunct faculty members who teach IDS approved courses and/or supervise our honours thesis and graduate students.

The department’s areas of expertise include many of the key regions of the developing world, particularly Africa, Asia, Latin America and the Caribbean. We take a broad view of development, including development issues within Canada as well as the developing world.

We offer a diverse set of opportunities for students to participate in experiential learning in both Canadian and international contexts. Experiential learning enables students to focus on skills development in a range of areas: language development, research, writing, managerial, etc. Through our experiential learning opportunities, students can volunteer or intern in Halifax, East Africa, Cuba, and many other locations. Students are encouraged to draw upon international development experiences from our many overseas linkage programs through Dalhousie, as well as the 90 local Halifax community organizations. Halifax is the main Maritime regional centre for official and non-governmental organizations active in international development, thereby offering opportunities for students to become engaged locally in development. Students normally participate in experiential learning programs (whether locally or abroad) in their third year of study.

The IDS program offers a study abroad option in Cuba (Winter); with FALCSO (Fiscal Latino Americana de Ciencias Sociales Program Cuba) and the University of Havana as well as a summer program in Cuba.

As an interdisciplinary program, IDS recommends students consider combined degree program. Students are therefore encouraged to enter the combined honors, double major or minor programs, which provide opportunities that further integrate their IDS studies with those of an approved arts or science field, e.g., IDS and History, IDS and Biology. Double majors and combined honors degrees provide additional opportunities for students to pursue graduate studies in more than one area.
Students with backgrounds in sciences are also welcome in this program as topics in international development cut across all disciplines from anthropology to zoology.

The interdisciplinary nature of the program requires that students take a number of credits outside the IDS department as IDS approved courses in other departments. The first year of study at Dalhousie is dedicated to completing first year requirements. IDS students are encouraged to take a broad range of disciplines in their first year to prepare them for the interdisciplinary format of the program.

First year students are encouraged to participate in a range of IDS non-class offerings including the Global Development Seminar Series and numerous student-led organizations related to International Development. Other events and activities are advertised on the IDS website and information can be obtained from the IDS office.

Students are encouraged to acquire competence in a relevant language in addition to English (e.g., Arabic, French, Spanish) and Economics. Research design and basic statistics courses (e.g., POLI 3402/3403 or SOAS 3402/3403) may also be useful skills to acquire throughout the IDS degree.

II. Degree Programs

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements for College of Arts and Science.

The IDS Department offers the following undergraduate degree options:

IDS as the second subject of study

1. Minor in IDS (three IDS credits required)
2. Double Major with IDS as the second subject (five IDS credits required)
3. Combined Honours with IDS as the second subject (six IDS credits required)

IDS as the primary subject of study

4. BA (15 credits) Major in IDS (three IDS credits required)
5. BA (20 credit) Double Major in IDS as the primary subject (five IDS credits required)
6. BA (20 credit) Major in IDS (six IDS credits required)
7. BA (20 credit) Combined Honours in IDS as a second subject: Thesis stream - seven IDS credits required
8. BA (20 credit) Combined Honours in IDS as a second subject: Coursework stream - nine IDS credits required
9. BA (20 credit) Concentrated Honours in IDS in Thesis stream - nine IDS credits required
10. BA (20 credit) Concentrated Honours in IDS in Coursework stream - nine IDS credits required

First Year Recommended Courses

To enter any of the IDS undergraduate degree programs, students must have completed five full credits (30 credit hours) and be strongly recommended to fulfill the first year requirements outlined in the Degree Requirement section of this calendar. Students who intend to pursue degrees in IDS are encouraged, but not required, to take five first year courses that will both fulfill their first year requirements and contribute to their broad understanding of international development issues. Students who are highly encouraged to take INTD 1100 (W/CAN 1100.06 (Dalhousie and the World), which can be used to satisfy either the first year social science or humanities requirement. Students who are considering a double major or combined honors program in IDS and another discipline are also encouraged to take any pre-requisite courses for upper level courses in the other discipline. The following courses provide background to key issues or basic skills related to International Development Studies, but are not pre-requisites for upper level IDS courses.

Social Science Requirement: INTD 1100 (W/CAN 1100.06); ECON 1101/1102; GWST 1010/1015; HIST 1501/1502; POLI 1010; POLI 1015; POLI 1020; POLI 1025; POLI 1030; POLI 1100; SOSA 1000; SOSA 1005; SOSA 1100; SOSA 1200; King's FYP.

Humanities Requirement: INTD 1100 (W/CAN 1100.06); HIST 1501/1502; HIST 1701/1702; GWST 1010/1015; RELS 1001/1002; RELS 1003; RELS 1005; RELS 1100; RELS 1105; RELS 1200; King's FYP.

Physical Science Requirement: SUST 1000; SUST 1005; ECON 1101/1102; ENVS 1000; ERTH 1060; PSYCH 1021,1022.

Language Requirement: French, Spanish, Arabic, Chinese, Italian, Russian, etc.

Writing Requirement: HIST 1005; POLI 1102; SOSA 1000; SUST 1000; PHIL 1010; ENGL 1010; ENGL 1020; ENGL 1040; ENGL 1045; ENGL 1050; ENGL 1500; King's FYP.

Degree options for IDS as the second subject of study

1. Minor in IDS
   See Minors in the College of Arts and Science section of this calendar (page 128).

2. Double Major – IDS as the second subject
   Advanced Courses Required:
   • INTD 2001.02/2002.02
   • INTD 3002.03 or 3003.03
   • One half credit IDS course with theory content at the 3000 or 4000 level: that is, any INTD course at the 3000 or 4000 level, excluding INTD 3002, INTD 3003, INTD 3101, INTD 3109 and INTD 4012.
   • One full credit of IDS and/or IDS approved courses at the 2000 level or above (See list of IDS approved courses in Section IV).
   • Two half credits of IDS and/or IDS approved courses at the 3000 level or above.
   In total, a minimum of five and a maximum of seven full credits in IDS are required, more credits are required in the first subject.

3. Combined Honours with IDS as the second subject
   Advanced Courses Required:
   • INTD 2001.02/2002.02
   • INTD 3002.03 or 3003.03
   • One half credit IDS course with theory content at the 3000 or 4000 level: that is, any INTD course at the 3000 or 4000 level excluding INTD 3002, INTD 3003, INTD 3101, INTD 3109 and INTD 4012.
   • Two full credits of IDS and/or IDS approved courses at the 2000 level or above. At least one full credit of IDS approved courses must be taken from a single department other than IDS (see list of IDS approved courses in Section IV).
   • Four half credits of IDS and/or IDS approved courses at the 3000 level or above.
   In total, six full credits in IDS are required.

Degree options for IDS as the primary subject of study

4. BA (15 credit) Minor in IDS
   See Minors in the College of Arts and Science section of this calendar (page 128).

5. BA (20 credit) Double Major in IDS
   Advanced Courses Required:
   • INTD 2001.02/2002.02
   • INTD 3002.03 or 3003.03
   • One half credit IDS course with theory content at the 3000 or 4000 level: that is, any INTD course at the 3000 or 4000 level excluding INTD 3002, INTD 3003, INTD 3101, INTD 3109 and INTD 4012.
   • Two full credits of IDS and/or IDS approved courses at the 2000 level or above. At least one full credit of IDS approved courses must be taken from a single department other than IDS (see list of IDS approved courses in Section IV).
   • Two full credits of IDS and/or IDS approved courses at the 3000 level or above.
   In total, five credits in IDS are required.

6. BA (20 credit) Major in International Development Studies
   Advanced Courses Required:
   • INTD 2001.02/2002.02
   • INTD 3002.03 or 3003.03
• One half credit INTD course with theory content at the 3000 or 4000 level; that is, any INTD course at the 3000 or 4000 level excluding INTD 3002, INTD 3003, INTD 3107, INTD 3109 and INTD 4012.
• Two full credits of IDS and/or IDS-approved courses at the 2000 level or above. At least one credit of IDS-approved courses must be taken from a single department other than IDS. (See list of IDS-approved courses in Section IV.)
• Four half credits of IDS and/or IDS-approved courses at the 3000 level or above.

In total, a minimum of six and a maximum of nine full credits in IDS are required.

IDS Honours Program
The IDS Honours program is designed for students with a demonstrated aptitude for advanced study in the field.

• Admission to the IDS Honours program is based on academic performance and, in the case of the thesis stream, a thesis proposal. Applicants normally should have achieved an overall Grade Point Average (GPA) of at least 3.50 (B+) or better and a minimum B+/A- in all IDS and IDS-approved courses to be considered for admission. In the case of a combined degree, those same requirements must be met in the second major subject.

• The deadline for Honours Applications is January 31 of a student’s third year of study. Consult the IDS Department website (www.dal.ca/ids) for information on how to apply to the honours program.

The available options within IDS Honours Program are:

7.a BA (20 credit) Combined Honours in IDS and a second subject: Thesis stream
Advanced Courses Required:
• INTD 2001.03 / INTD 2002.03
• INTD 3002.03 or INTD 3003.03
• INTD 4012 (Honours Thesis Course).
• At least one half credit INTD course with theory content at the 3000 or 4000 level; that is, any INTD course at the 3000 or 4000 level excluding INTD 3002, INTD 3003, INTD 3107, INTD 3109 and INTD 4012.
• One half credit of 4000-level INTD seminar course.
• Three full credits of INTD and/or IDS courses at the 2000 level or above. Students must take at least one full credit of IDS approved courses from at least two different departments.
• Two half credits of INTD and/or IDS approved courses at the 3000 level or above.

In total, a minimum of seven and a maximum of eight full credits in IDS are required.

7.b BA (20 credit) Combined Honours in IDS and a second subject: Coursework stream
Advanced Courses Required:
• INTD 2001.03 / INTD 2002.03
• INTD 3002.03 or INTD 3003.03
• INTD 4012 (Honours Thesis Course).
• At least one half credit INTD course with theory content at the 3000 or 4000 level; that is, any INTD course at the 3000 or 4000 level excluding INTD 3002, INTD 3003, INTD 3107, INTD 3109 and INTD 4012.
• One half credit of 4000-level INTD seminar course.
• Three full credits of INTD and/or IDS courses at the 2000 level or above. Students must take at least one full credit of IDS approved courses from at least two different departments.
• Two half credits of INTD and/or IDS approved courses at the 3000 level or above.

In total, a minimum of seven and a maximum of eight full credits in IDS are required.

8.a BA with Concentrated Honours in International Development Studies - Thesis stream
Advanced Courses Required:
• INTD 2001.03 / INTD 2002.03
• INTD 3002.03 or INTD 3003.03
• INTD 4012 (IDS Honours Thesis course).
• One half credit INTD course with theory content at the 3000 or 4000 level; that is, any INTD course at the 3000 or 4000 level excluding INTD 3002, INTD 3003, INTD 3107, INTD 3109 and INTD 4012.

• One half credit of 4000-level INTD seminar courses.
• Three full credits of INTD and/or IDS-approved courses at the 2000 level or above. Students must take at least one full credit of IDS approved courses from at least two different departments.
• Six half credits of INTD and/or IDS-approved courses at the 3000 level or above. (See list of IDS-approved courses in Section IV.)

In total, a minimum of 9 and a maximum of 11 IDS credits are required.

8.b BA with Concentrated Honours in International Development Studies - Coursework stream
Advanced Courses Required:
• INTD 2001.03 / INTD 2002.03
• INTD 3002.03 or INTD 3003.03
• One half credit INTD course with theory content at the 3000 or 4000 level; that is, any INTD course at the 3000 or 4000 level excluding INTD 3002, INTD 3003, INTD 3107, INTD 3109 and INTD 4012.
• Two half credit 4000-level INTD seminar courses.
• Three full credits of INTD and/or IDS-approved courses at the 2000 level or above. Students must take at least one full credit of IDS approved courses from at least two different departments.
• Six half credits of INTD and/or IDS-approved courses at the 3000 level or above. (See list of IDS-approved courses in Section IV.)

In total, a minimum of 9 and a maximum of 11 IDS credits are required.

Conversions
Students who have completed a 15 credit degree can upgrade to a 20 credit major or double major degree. Students who have completed a Major in IDS can upgrade to an Honours degree (pending acceptance to the IDS honours program). The requirements for conversions are as follows:

BA Major Conversion in International Development Studies
Dalhousie graduates who wish to upgrade their qualifications from a 15 credit Minor to a 20 credit Major degree may enter this program. Students must complete the full set of 20 credit Major requirements, usually by taking five additional full credits.

BA Honours Conversion in International Development Studies
Dalhousie graduates who wish to upgrade their qualifications from a 15 credit Minor or a 20 credit major or double major degree to a 20 credit Honours degree may enter this program if they meet the conditions for admission to the Honours program. Students must complete the full set of Honours requirements. Students interested in this program should consult the Undergraduate Advisor.

III. Course Descriptions

A. Core Courses

INTD 2001.03: Introduction to Development I.
Poverty, inequality and injustice are widespread throughout the contemporary developing world. This course will examine how this situation came to be. It begins by analyzing the different meanings of the term “development” and then examines the major approaches that have shaped practical development initiatives on the ground in the Global South over the past 60 years. The course also examines the legacies of history for contemporary development efforts in the Global South through specific case studies.

FORMAT: Lecture/tutorial

PREREQUISITE: Completion of five full credits at the 1000 level or instructor’s permission.

CROSS-LISTING: GEOG 2001.03

INTD 2002.03: Introduction to Development II.
This course builds upon the core concepts and approaches studied in INTD 2001 (i.e. different theoretical approaches to development and the historical creation of underdevelopment). The course examines key contemporary issues in the field of development and analyzes the connections between them: debt, global trade rules, foreign aid, hunger and malnutrition, rural and urban livelihoods, population growth. The course also examines the principles and strategies that have been used to promote and resist development, including:
EXCLUSION: INTD 3045.03

requirement.

The objective of this half-credit course is to introduce students to the society and development planning, methodologies of development practice in the field, ethical issues related to development work, fundraising, project proposal writing and project evaluation. The major assignment will involve the preparation of a development project proposal. Because this is a course in development practice, it will involve both seminar discussions and practical “hands-on” activities. Different sections of the course may include different thematic emphases – e.g. rural development, gender and community development.

FORMA T: Lecture/seminar

PREREQUISITE: Completion of five credits at the 1000 level or instructor’s permission

INTD 3003.03: Development and Activism: Methods of Organization, Manifestation and Dissent.

There are three parts to this course. In Manifestation we explore theories of activism to understand how motivated individuals managed to change their societies. In Organization we wrestle with the legalities of forming a civil-society organization. In Dissent we take up our skills to the streets by organizing lawful protests.

FORMA T: Lecture/tutorial

PREREQUISITE: INTD 2001.03 and INTD 2002.03 or instructor’s permission

INTD 4012.03: Honours Thesis Seminar.

The honours thesis course is open to only those students who have been accepted into the thesis stream of the IDS honours program. This course will support students through the writing of their honours theses, from proposals to completion. Issues of research design, method, and ethics will be addressed, and work in progress will be presented.

FORMA T: Seminar

PREREQUISITE: Admission to IDS Honours Program (Thesis Stream)

B. Additional IDS Courses

INTD 1100X/Y.06: Halifax and the World.

This course offers an introduction to both International Development Studies and Canadian Studies by exploring the connections between important global issues and your daily life as a student in Halifax. As you walk across the Dalhousie campus and go about daily life in Halifax, your actions connect you to people, the globe, and to the history of the city and world as well as to the many works of literature, art, and music that depict these connections. 

FORMA T: Lecture, discussion, tutorial and experiential learning outside the classroom

CROSS-LISTING: CANA 1100.06

EXCLUSION: INTD 1101.03/1101.01

INTD 2045.03: Indian Society: Change and Continuity.

This course is intended for Canada World Youth participants who wish to use their Canada World Youth experience as a basis for further study—leading to an academic credit. Canada World Youth participants will receive detailed written course guidelines and a reading package. CWY participants are required to keep a journal of their observations and to write a research report drawing upon their experiences on the CWY project both in Canada and overseas. Upon return to Canada, they should communicate with the International Development Studies Office at Dalhousie and should extra guidelines be sought, they inform the Course Instructor at that point. Normally, within 40 days of their return, they should submit their reports (in accordance with guidelines provided by the Instructor) for evaluation. All CWY course participants are encouraged to present talks to local high schools, youth groups, and appropriate community-campus organizations.

The degree of analysis will be more demanding the higher the level of course taken. In each case, papers may be written in English or French. 

RECOMMENDED: INTD 1012.02

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Consult the Department for more information

RESTRICTION: Can only be taken once in a student’s program.

INTD 3000.03: Seminar in Development Studies.

This seminar course consists of an intensive examination of a selected issue within International Development Studies. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

FORMA T: Seminar

PREREQUISITE: INTD 2001.03 and INTD 2002.03 or instructor’s permission

INTD 3001.03: Contemporary Debates in Development Theory.

This seminar course examines key contemporary theoretical debates in International Development Studies and their relevance to the real world of development practice.

FORMA T: Seminar

PREREQUISITE: INTD 2001.03 and INTD 2002.03 or instructor’s permission

INTD 3010.03: Seminar in Development Studies.

This seminar course consists of an intensive examination of a selected issue within International Development Studies. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

FORMA T: Seminar

PREREQUISITE: INTD 2001.03 and INTD 2002.03 or instructor’s permission

INTD 3012.03: Sustainability, Development, Economy.

This course offers an introduction to principles of sustainability and equitable distribution of benefits oriented towards issues of economy. The course adopts an interdisciplinary framework of inquiry to explore challenges of appropriate scale (relative to biocapacity), efficient allocation, and inter and intra-generational equity. In addition, the course will consider how these issues apply to managing real world issues in environmental management, and will explore tools to quantify and interpret scale, efficiency, and distributive justice. This course is designed as a one-term introduction to the intersection of sustainability, economic issues and social justice for undergraduate students who have little or no prior exposure to economics, but who have completed one or more courses in international development, IDS, or economics, or related programs.

FORMAT: Online delivery

PREREQUISITE: INTD 2001.02 or SUST 2000 or permission of instructor
INTD 3107X/Y.06: Experiential Learning: Canada.
Experiential learning is an opportunity for students to reflect on the global/local and theory/practice dynamics of the world around them. Other programs and departments use terms such as internship, volunteer or co-op placements. IDS has adopted the term experiential learning because it reflects the interplay between academic and practical skills development that this program offers. Experiential learning courses are available for both local and international placements. The Canadian component of experiential learning focuses on the themes of community development and public engagement. The international component addresses questions of global citizenship. The Canadian component of experiential learning combines classroom learning with volunteer work experience in a community organization in Halifax or other parts of Canada. Students are required to volunteer for a minimum of 40 hours in each term, or approximately 3 hours/week. In addition to this work, students are required to complete a set of readings (to be developed in collaboration with the course instructor) and three academic assignments (a mid-term report, a reflective piece and an academic paper).

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

INTD 3109.03: Experiential Learning: Abroad.
The experiential learning abroad course is open to International Development Studies students who wish to obtain academic credit for an overseas placement. Students who have already secured a place in an overseas experiential learning program can register for this half credit. Special permission to register for this course is required and an application for this course must be submitted prior to registration. Students are required to complete course readings and to write several essays reflecting on the relevant literature and the practical work experience. One half credit is completed over the course of a full academic year.

INTD 3110.03: Migration and Development.
The purpose of this course is to explore and better understand the connections between migration and development in contemporary societies. Classes will introduce or further explore one main theme or issue, such as development-induced displacement, labour migration, and HIV/AIDS and migration. Each class will centre on one or more discussion questions, exchange insights from relevant experiences of class participants or focus on a case study.

INTD 3111.03: Popular Culture and Development.
Development does not occur in a vacuum; it is informed by a particular cultural understanding and carried out by a specific mode of politics. Similarly, culture is not a simple linear, unilateral interpretation, but is a complex, interdependent, and constantly evolving system that is shaped by other societal dimensions. This course will seek to understand the connections between culture and development by specifically exploring the dynamics of popular culture and its linkages with capitalist forms of development mainly in the South.

FORMAT: Lecture/seminar

INTD 3114.03: Environment and Development.
This seminar investigates the intersections between environmental science and development studies. Our primary focus will be to understand how the non-human environment influences and constrains development interventions, both in the past and the present. The course is organized into three distinct sections. The first focuses on informal lecture mixed in with discussion and interactive forums, including debates and small group exercises. The second component of the course revolves around student presentations, while the final component consists of a simulated negotiation.

FORMAT: Lecture/seminar

INTD 3115.03: Global Health: Challenges of Global Health Equity in the 21st Century.
By examining global inequalities that lead to health injustices, this course explores why healthcare is abundant for some and nonexistent for others. It identifies why some are born to live well, and others are doomed to die quickly. It asks, "what are we going to do about it?"

FORMAT: Lecture

INTD 3116.03: Contemporary Issues in Gender and Development.
The course critically examines how development processes affect women and men and gender relations. Many development projects and policies have had a negative impact on women. The course engages students in discussions and debates about the ways in which gender is formed and gender roles are sustained. It explores the gendered impact of policies and processes and examines issues such as governance, HIV/AIDS, and conflict.

FORMAT: Seminar

INTD 3125.03: The French-Speaking World.
Introduction to the French-speaking world from a political, cultural, social and economic perspective. Study of the organization known as la Francophonie, with an emphasis on its evolution and mandate, as well as on the bilateral and multilateral cooperation between member countries. The course is designed for students who are not specializing in French. The course format will consist of lectures and in-class discussion of print and audio-visual materials. Student assessment will be based on oral presentations, assignments, exams and written papers. The language of the course will be English.

CROSS-LISTING: FREN 3125.03

INTD 3150.03: Aspects of the francophonie/Aspects of the Francophone World.
Taught in French.

Introduction to the study of the francophone world: political, cultural, social and economic perspective. Study of the organization known as la Francophonie, with an emphasis on its evolution and mandate, as well as on the bilateral and multilateral cooperation between its member countries. The course is designed for students who are not specializing in French. The course format will consist of lectures and in-class discussion of print and audio-visual materials. Student assessment will be based on oral presentations, assignments, exams and written papers. The language of the course will be English.

CROSS-LISTING: FREN 3125.03

INTD 3401.03: Seminar in Development Studies.
This seminar course consists of an intensive examination of a selected issue within International Development Studies. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

FORMAT: Seminar

PREREQUISITE: INTD 2001.03 and INTD 2002.03 or instructor’s permission
INTD 3406.03: Seminar in Development Studies.
This seminar course consists of an in-depth examination of a selected issue within International Development Studies. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.
FORMAT: Seminar
PREREQUISITE: INTD 2001.03 and INTD 2002.03 or instructor's permission

INTD 3408.03: The Cuban Development Model.
This course examines the evolution of the Cuban development model, from the Conquest and colonization by the Spanish to the reforms of the early 21st Century. The objective is to develop an understanding of the various development strategies employed by Cuba, particularly since the revolution of 1959. When asked about the Cuban development model, most people nowadays would say "socialism." Thirty years ago it was easier--as it had been from the beginning of the 18th Century. In fact Cuba obtains most of its hard currency from medical-related services--readily from the exportation of medical services, but also from the sale of sophisticated biotechnological products. Cuba's approach has evolved dramatically in the last two decades, and particular attention will be paid to this period.
FORMAT: Lecture and discussion
PREREQUISITE: INTD 2001.03 and INTD 2002.03

C. The Cuba Semester Program - Offered in the Winter Semester only in Cuba

INTD 3301.03: Spanish Language and Grammar: The Cuban Dialect.
NOTE: INTD 3301 - 3306 are offered as part of the Cuba Semester program. Only students enrolled in this program may take these courses.
Spanish Language and Grammar: The Cuban Dialect (prerequisite for the remaining courses).

INTD 3302.03: Social Development in Cuba.
This course examines the situation of women, the family and children in Cuba, and the educational system in theory and in practice.

INTD 3303.03: The Political Economy of Cuba.
Analysis and debate of the forms of politics practiced in the Cuban revolution, as well as with institutions, during the various stages of the revolutionary process. Study of the evolution of the Cuban economy and all its principle strategies, including the economic crisis and Cuba's transition in the international economic arena.

INTD 3304.03: Sustainable Development in Cuba.
The course examines Cuba's experience with sustainable development, including recently introduced agricultural cooperatives and communal environmental education.

INTD 3306.06: Field Research Practicum.
This course involves four-weeks of field research under the supervision of a Cuban professor, culminating in the production of a major research paper. Research will be undertaken in one of the following three areas:
* the environment and sustainable development;
* women, family and childhood in the community;
* community work and social participation.
FORMAT: Fourteen weeks - University of Havana
PREREQUISITE: Students must be, at least, functional in Spanish (SPAN 1020.06 and SPAN 2020.06).
CROSS-LISTING: SPAN 3301.03, 3302.03, 3303.03, 3304.03, 3306.06
RESTRICTION: Open to students enrolled in 3rd or 4th year of the IDS or Spanish program or comparable programs at other universities

INTD 3310.06: Cuban Culture and Society.
Through seminars, lectures and other activities, students will be introduced to Cuban society and culture. This course consists of briefening and debriefing sessions in Havana with two weeks spent in Cuba. In Cuba, there will be daily lectures in English at the University of Havana and field trips to sites in and around Havana with opportunities to meet and interact with the local population. Participants will be required to keep a journal, and prepare and present a research paper on an approved topic related to Cuban development. This course counts as a credit in IDS, or Spanish towards the IDS established discipline requirement.

INTD 4001.03: Environmental Conflict and Security.
This seminar seeks to unravel the origins of conflict in the Global South. It emphasizes the ecological dimension of conflict, by investigating the interactions between natural resources and political upheaval. We will trace the origins of a diverse set of conflicts evaluating the role the non-human environment plays in triggering upheaval, as well as possible steps to alleviate ongoing conflicts and prevent new ones.
FORMAT: Seminar
PREREQUISITE: INTD 2001.03 and INTD 2002.03 or instructor's permission

INTD 4003.03: Global Poverty and Human Rights: From Development to Global Citizenship.
This course explores contemporary debates from an interdisciplinary cadre of scholars in order to understand why our political and financial systems sequesce to world poverty. The course will run as a seminar course that will require students to contribute as active participants by generating critical debate out of the assigned readings.
FORMAT: Seminar
PREREQUISITE: Minimum of 2 years of Spanish and/or equivalent and at least one third year IDS course or instructor's permission
CROSS-LISTING: SPAN 4003.03

INTD 4006.03: Special Topics in International Development Studies.
INTD 4009.03: Topics in Cuban Development.
This course will undertake a case, in depth examination of a select theme in Cuban development. The theme will vary from year to year. These may include such topics as: Issues of Gender & Society, Economic Relations & International Policy, Sustainable Development & Social Participation in Rural Communities & Agricultural cooperatives, Family, Poverty, Social Development and Community Programs, Social Class Dynamics and Economic Strategies. The course will be taught in Spanish. Classes will involve the reading, presentation, and discussion of selected readings.
FORMAT: Seminar
PREREQUISITE: Minimum of 2 years of Spanish and/or equivalent and at least one third year IDS course or instructor's permission
CROSS-LISTING: SPAN 4006.03

INTD 4011.03: Advanced Seminar in Development Theory.
PREREQUISITE: INTD 2001.03 and INTD 2002.03 or instructor's permission

INTD 4013.03: Development & Security.
The primary aim of this course is to provide a broad foundation to some of the theoretical perspectives which have informed current thinking in gender and development. The course introduces students to key concepts in the analysis. PREREQUISITE: INTD 2001.03 and INTD 2002.03 or instructor's permission
CROSS-LISTING: GWST 4213.03

INTD 4022.03: Special Topics in IDS.
INTD 4211.03: Gender and Development: Theory, Concepts and Methods.
The primary aim of this course is to provide a broad foundation to some of the theoretical perspectives which have informed current thinking in gender and development. The course introduces students to key concepts in the analysis. PREREQUISITE: INTD 2001.03 and INTD 2002.03 or instructor's permission
CROSS-LISTING: GWST 4213.03

IV. IDS Approved Courses from Other Departments
NOTE: Some courses are not offered every year so please consult the current timetable, in addition to the calendar, when registering.

1. Arabic
   • ARIC 2100.03: A Cultural Introduction to the Arab World

2. Contemporary Studies
   • CTMP 2115.03: Conception of Race in Philosophy, Literature and Art
   • CTMP 2221.03: The Question of the Other I
   • CTMP 2222.03: The Question of the Other II
7. Environmental Studies

Most environmental scientists have primary expertise in a particular discipline and work cooperatively with specialists from other disciplines to solve environmental problems. Dalhousie offers courses in both environmental studies and science. However, current programs that also provide courses emphasizing environmental subjects include Earth Sciences (geology and hydrogeology), marine biology and POLI 3865.03.

• ENV 1220.01: International Environmental Law for Scientists
• ENV 3810.01: Environmental Problem Solving I
• ENV 3820.01: Environmental Problem Solving II: The Campus as a Living Laboratory
• ENV 4001.01: Environmental Impact Assessment
• ERTH 2410.03: Environmental and Resource Geology
• ERTH 3410.03: Enhanced Environmental Geology
• GEOG 2070.03: Area Studies on Mexico and Central America
• GEOG 2201.01: Intro to Development Studies
• GEOG 2201.01: Intro to Development Studies II
• GEOG 2203.05: Africa: An Introduction
• GEOG 2503.03: Climate Change
• GEOG 3145.03: Peoples and Cultures of the World: Selected Area Studies
• PHIL 2485.03: Environmental Ethics
• PHIL 2485.03: Technology and the Environment
• POLI 3577/XY.06: Management and Conservation of Marine Resources
• POLI 3585.01: Politics of the Environment
• POLI 3589.01: Politics of the Sea

8. Gender and Women’s Studies

It is important to recognize the implications of gender issues and to be sensitive to how these are viewed in different cultural circumstances. Hence, students are strongly encouraged to participate in at least one of the following GWST courses.

• GWST 2006.03: Women and Islam
• GWST 2040.X/XY.06: Work and Occupations in a Changing World
• GWST 2006.03: Comparative Perspectives on Gender
• GWST 3006.03: Comparative Perspectives on Gender and Work
• GWST 3105.01: Women and Religion
• GWST 3106.03: Issues in Latin American Society
• GWST 3110.03: Gender and Development in Africa
• GWST 3420.05: Sex and the State
• GWST 3642.05: Sexualization of Western Political Thought
• GWST 4116.03: Contemporary Issues in Gender and Development
• GWST 4211.03: Gender and Development: Theory, Concepts and Methods
• GWST 4520.03: Empowerment, Gender, and Development

9. History

Just as people need to know who they are and how they arrived there, groups, races, courses, states and nations need a sense of their own past as part of their culture and to guide their future development choices.

• HIST 2006.03: The Atlantic World, 1450-1650: European Colonization of the Americas
• HIST 2007.03: The Atlantic World, 1650-1800: European Empires in the Americas
• HIST 2010/2100.06: Imperial and Soviet Russia
• HIST 2101.03: Soviet Russia
• HIST 2108.03: Latin American Dictators in the Novel
• HIST 2301.03: Latin America
• HIST 2302.03: Central America to 1979
• HIST 2303.01: Area Studies on Mexico and Central America
• HIST 2304.01: Cuba: Ares Colonial Times
• HIST 2305.01: The Cuban Cultural Revolution
• HIST 2306.03: Colonial Latin America
• HIST 2307.01: Latin America since Independence
• HIST 2309.01: Introduction to Caribbean History (1480 to present)
• HIST 2423.01: Africa Before 1900
• HIST 2426.05: Africa Since 1900
• HIST 2427.03: The Ottoman Empire and Its Legacy in the Middle East, 1700-1923
• HIST 2428.03: Classical and Medieval History of Islamic Civilization
• HIST 2504.03: Modern History of Turkey, Iran, Iraq, and the Arab-Speaking lands (nineteenth-twentieth centuries)
• HIST 2505.03: Eastern Europe and the Soviet Union
• HIST 2510.03: Modern History of South Asia
• HIST 2711.03: Struggles that Shaped the Modern World: 1600 - 1900
• HIST 2722.03: Freedom Fighters or Terrorists?
• HIST 2700.03: Russian Society
• HIST 2700.03: Russian Topics
• HIST 2700.03: Russian History
• HIST 3390.03: Latin America: Revolution and Repression.
• HIST 3390.03: Indigenous Movements in Latin America
• HIST 3490.03: The Making of Colonial Africa, c. 1850-1930
• HIST 3471.03: Struggles in the City: Labour, Migration and Urban Life in Colonial Africa.
• HIST 3433.03: The Rise and Fall of African Slavery
• HIST 3433.03: Southern Africa to 1860
• HIST 3433.03: Southern Africa since 1860
• HIST 3471.03: Wars and Revolutions in Nineteenth Century Africa
• HIST 3471.03: Wars and Revolution in Twentieth Century Africa
• HIST 3390.03: Topics in Global History
• HIST 3509.03: Arab-Culpts, Turkish Communities, and Persian Viziers: Islamic History, 700-1200
• HIST 3510.03: Sultans and Slaves: Politics and Religion in the Islamic Conqueror Age (1500-1800)
• HIST 3511.03: Ancient and Medieval History of the Persianate World
• HIST 3512.03: Modern History of Iran, Central Asia, and the Caucasus
• HIST 3513.03: From Cairo to Cape Town: Religious Revival, Identity and Colonialism in Muslim Africa.
• HIST 3543.03: Food for Thought: History and the Culinary Cultures of the Islamic World
• HIST 4271.03: The Fisheries of Atlantic Canada's Society and Ecology in Historical Perspective
• HIST 4209.03: Topics in Latin American History
• HIST 4209.03: Topics in African History
• HIST 4401.03: State Violence: Communal Conflict and Cremilology in Modern South Africa
• HIST 4404.03: Crime and Punishment in Modern South Africa
• HIST 4475.03: African Intellectuals and the Modern Experience
• HIST 4510.03: Topics in Islamic and Middle East History.
• HIST 4548.03: Scripture and Strategy: History of Islamic Political Thought
• HIST 4590.03: Orientalism and Occidentalism
• HIST 4593.03: A dream Palaces or a Bitter Reality: Arab Intellectuals and their Ideologies in the Modern Period
• HIST 4641.03: Sex, Conquest and Power, Sex and Gender in Latin America - 1492 to the present.

10. Philosophy
Issues in International Development are fundamentally concerned with principles of ethics and justice. Philosophy provides students with the necessary foundation to think about these principles and apply them to international issues in an informed way.

• PHIL 2001.03: Ethics in the World of Business
• PHIL 2109.03: Philosophical Issues of Feminism
• PHIL 2109.03: Philosophy and the Black Experience
• PHIL 2409.03: Democracy, Difference and Citizenship
• PHIL 2479.03: Justice in Global Perspective
• PHIL 2480.03: Environmental Ethics
• PHIL 2486.03: Technology and the Environment
• PHIL 2479.03: Human Rights: Philosophical Issues
• PHIL 3479.03: Liberalism and Global Justice
• PHIL 4700.03: Philosophy of Race

11. Political Science
Political Science is critical for individuals who want to know more about the values, laws, institutions and policy mechanisms that govern their lives in society, and, as well, the differences between their systems of government and those in other countries.

• POLI 2300/Y:06: Comparative Politics
• POLI 2520.03: World Politics
• POLI 2520.03: Foreign Policy in Theory and Practice
• POLI 3302.03: Comparative Development Administration
• POLI 3302.03: Human Rights: Political Issues
• POLI 3311.03: Sport and Politics
• POLI 3311.03: African Politics
• POLI 3330.03: Governance and Globalization
• POLI 3346.03: Politics in Latin America
• POLI 3380.03: Politics of Climate Change
• POLI 3385.03: Politics of the Environment
• POLI 3401.03: Human Rights: Philosophical Issues
• POLI 3520.03: Building Democracy and Peace
• POLI 3520.03: Comparative Foreign Policy Simulation
• POLI 3531.03: The UN in World Politics
• POLI 3553.03: The New International Division of Labour
• POLI 3557/Y:06: Management and Conservation of Marine Resources (summer only)
• POLI 3560.03: Foreign Policies of Third World States
• POLI 3564.03: Political Economy of Southern Africa
• POLI 3560.03: Human Development/Security at the Start of the Twenty-first Century
• POLI 3567.03: International Organizations
• POLI 3570.03: Canada and the World
• POLI 3581.03: Diplomacy and Negotiation
• POLI 3588.03: Politics of the Environment
• POLI 3587.03: International Political Economy
• POLI 3596.03: Explaining Global Conflict and Violence
• POLI 3402.03: Comparative Development Administration
• POLI 3401.03: Human Rights Political Issues
• POLI 3435.03: Comparative Perspectives on the Development State
• POLI 3459.03: Canadian Foreign Policy
• POLI 4603.05: Nationalism and Statecraft
• POLI 4605.03: Oil, Natural Gas and Government: The Political Economy of Regulation

12. Religious Studies
Understanding religion and its influences on human behaviour involves grasping both the meaning of faith in the lives of participants and the critical analysis of outside observers. It has important implications for international cultures and development questions.

• RELS 2002.03: Christianity
• RELS 2013.03: Islam
• RELS 2101.03: Hinduism
• RELS 2013.04: Buddhism
• RELS 2015.03: Women and Islam
• RELS 3009.03: Christianity in the Land of Islam
• RELS 3101.03: The Self and the World in Indian Story
• RELS 3112.04: Buddhism in India and Tibet

13. Russian
Russia and the Soviet Union have been important players on the world stage for many centuries. The history and current situation of this region has had profound importance for the development of both Europe and Asia, as well as the developing regions. The study of this region is increasingly important to development theory, practice and planning.

• RUSN 2023.03: Contemporary Russian Culture - The Seven Deadly Sins
• RUSN 2081.03: Contemporary Russian Culture - The Seven Deadly Sins

14. Sociology and Social Anthropology
Sociology provides a context within which students learn to think critically about their social environment. Social Anthropology aims at generalizations by comparing structures and processes in various institutions within societies (kinship, political, economic and religious) as well as between societies.

• SOSA 2001.03: Ethnography in a Global Context
• SOSA 2002.03: Explaining Social Inequality
• SOSA 2101.03: Environment and Culture
• SOSA 2102.03: Political Ecology
• SOSA 2190/0Y:06: Comparative Perspectives on Gender
• SOSA 2200/0Y:06: The Family in Comparative Perspective
• SOSA 2201/0Y:06: Gender, Ghosts, Gods, Games
• SOSA 2400/X:010: Health and Illness Across Cultures
• SOSA 2402.03: Food Through Time and Space
• SOSA 2403.04: Food and Its Regulation
• SOSA 3002.03: Native Peoples of Canada
• SOSA 3003.03: Food in Industrial Society: The Future: Knowledge, Work and Culture in the Contemporary World
• SOSA 3006.03: Comparative Perspectives on Gender and Work

International Development Studies 267
Italian Studies

NOTE: Courses in Italian studies are administered by the French Department (page 212). New admissions to the Italian second major and honours programs have been suspended until 2015. The Minor remains open.

Location: 6135 University Avenue, Room 1114
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-6816
Fax: (902) 494-1626
Email: Italian@dal.ca
Website: http://dal.ca/italian

Dean
Summerby-Murray, R., ATCL Dip (Trinity College, London), BA, MA (Canterbury), PhD (Toronto)

Chair
Elson, C., BA (Vind), MA (Dalhousie), Dr de 3e cycle (Sorbonne)

Undergraduate Advisor
Paolo Matteucci, paolo.matteucci@dal.ca

Assistant Professors
Paolo Matteucci, Laurea in Lingue (Torino), MA, PhD (USC)

I. Introduction
Learning to read and speak Italian offers access to an important world culture. While modern Italy began to emerge in its present-day form in the 19th century, the civilizations that preceded it have exerted a strong influence on the culture of the West. Whether in religion, art, music, or science, Italy’s past offers many keys to the present. Through its tradition of global exploration and entrepreneurial endeavors, Italy has played a significant role in world history. Today, it is one of the world’s wealthiest democratic nations, and a leader in a variety of fields, including film, design, cuisine, and intellectual life. Courses in Italian literature and culture, building on courses in Italian language, will open up to the student this wide and fascinating array of topics.

II. Degree Programs
In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar.

A. BA (20 credit) Double Major
A minimum of five full credits (24 credit hours) and a maximum of eight in Italian studies above the 1000 level, combined with one of the Major subjects in the BA program. Within those five credits, students must include ITAL 2010.06 and ITAL 3010.06, and at least one other full credit above the 2000 level.

B. BA (20 credit) Combined Honours
A minimum of five full credits (30 credit hours) in Italian studies above the 1000 level is required for the Combined Honours program, along with one of the Combined Honours subjects in the BA program. Within these five credits, students must include ITAL 2010.06 and ITAL 3010.06, at least one other full credit above the 2000 level and at least one half credit at the 4000 level.

NOTE: Italian studies can only be the second subject for the Double Major or Combined Honours. It cannot be the primary subject for those programs.
C. Minor in Italian Studies

See Minors in the Course of Arts and license section of this catalog (Page 129).

III. Course Descriptions

ITAL 1010X/Y.06: Italian for Beginners.

An introductory survey of Italian culture and the Italian language (with practical vocabulary for oral and written communication). This course aims to develop all language skills (listening, speaking, reading, writing) by integrating grammar study, oral and written exercises, and situational contexts. The course also includes an introduction to the Italian culture. This course fulfills the 180 language requirement. NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture lab/tutorial

ITAL 2010X/Y.06: Intermediate Italian.

This course opens to students with a sound knowledge of the basics of the Italian language (vowels, consonants, basic high frequency vocabulary) and is designed to build on that knowledge. The objective of the course is fourfold: 1) to develop awareness of four points of output in writing Italian; 2) to provide practice in listening comprehension of material ranging from texts read aloud to spontaneous dialogue; 3) to provide the practice required for the consolidation and development of speaking skills; 4) to provide the practice required for the consolidation and development of reading skills.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture/discussion

PREREQUISITE: ITAL 1010X/Y.06

ITAL 2061.03: Civilization of Baroque Italy.

This is a scaled-down version of 2060X/Y.06, and studies Italy at the time of its greatest influence on Western civilization. The course examines Italy’s politics, its vibrant urban and rural societies, the place of Catholicism in its cultural and intellectual life, and the innovative early modern economy, all before the great crisis of the 1620s. Open to first-year students.

FORMAT: Lecture/historical

CROSS-LISTING: HIST 2061.03

EXCLUSION: HIST 2060.06

ITAL 2101X/Y.06: The Origins of Modern Italy.

An introductory survey of Italian history from the late Renaissance to the French Revolution, and Italy’s passage from the Western world’s pilot economy and Italy’s political role in the European early twentieth century to the present, with discussion of major historical and intellectual life, and the innovative early modern economy, all before the great crisis of the 1620s. Open to first-year students.

FORMAT: Lecture/historical

CROSS-LISTING: HIST 2061.03

EXCLUSION: HIST 2060.06

ITAL 2200.03: Modern Italian Culture.

This course will focus on the transformation of modern Italian culture from the early twentieth century to the present, with discussion of major historical and social events of the period. Topics may include fascism, literature, neo-realism, the rise of media culture in Italian cinema, and Italy’s political role in the European Union.

FORMAT: Lecture

ITAL 2201.03: Survey of Italian Literature I: from the Origins to 1600.

This course will provide a survey of Italian Literature from the Middle Ages to 1600. Literature covered may include works of writers such as Dante Alighieri, Francesco Petrarca, Giovanni Boccaccio, Catherine of Siena, Niccolò Machiavelli, Benvenuto Cellini and Veronica Franco. This course will be given in English; readings for Italian major students will be in Italian.

FORMAT: Lecture

EXCLUSION: ITAL 2210

ITAL 2202.03: Survey of Italian Literature II: 1600 to Present.

This course will provide a survey of Italian Literature from 1600 to present. Literature covered may include works by Ugo Foscolo, Giacomo Leopardi, Sibilla Aleramo, the Futurists, Luigi Pirandello, Italo Svevo, Italo Calvino, Natalia Garabog, and Dacia Maraini. This course will be given in English; readings for Italian major students will be in Italian.

FORMAT: Lecture

EXCLUSION: ITAL 2210

ITAL 2210.03: Introduction to Italian Literature.

This course will focus on selected topics in Italian literature and criticism. The course will be given in English and readings for Italian minor and major students will be in Italian.

FORMAT: Lecture

ITAL 2600.03: Survey of Italian Cinema.

Class to be held in English; with part of the course work in Italian for Italian majors. Survey of the Italian Cinema from the origins onwards. Focus: the golden age of Italian silent movies; visual culture under fascism; Italian neo-realism; the impact of television.

FORMAT: Lecture

CROSS-LISTING: THEA 3320

ITAL 3010XY.06: Advanced Italian.

This course will focus on spoken and written Italian. Cultural aspects of Italy’s past and contemporary history will be the subjects of oral discussion and written composition. Topics such as fine arts, theatre, cinema, music, culinary history, and fashion will be the basis for language practice. The goal of the course is to provide students with conversational and writing skills. Attention will be given to four points of grammar, particularly Italian morphology and syntax. Students will engage in small group work and individual reporting. The material for the course will be drawn from both specialized workbooks and new articles from authentic Italian newspapers and websites. Some class time will be devoted to impromptu discussions allowing students to test their thinking and communication skills.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture/discussion

PREREQUISITE: ITAL 2100XY/O or permission of instructor

ITAL 3300.03: Twentieth Century Italian Literature.

This course examines Italian literature in the twentieth century, with references to contemporary Italy’s social history and culture. Students will acquire first-hand knowledge of the work of key writers of the Neorealists, such as for example Sibilla Aleramo, Luigi Pirandello, Italo Svevo, Natalia Garabog, Primo Levi, Elsa Morante, Italo Calvino, Dacia Maraini, or others. The course goals are multi-fold: while strengthening their communicative skills in Italian, students will forge their own tools for critical and argumentative thinking, and use them to engage in a productive reading of the literary texts under consideration. All coursework will be done in Italian.

FORMAT: Lecture

PREREQUISITE: ITAL 2100XY/O or permission of instructor

ITAL 3500.03: Topics in Italian Culture.

This course will discuss and critically assess selected topics of Italian culture. The subjects will vary from year to year, and may range from Italy’s fine arts tradition to the history of its commodity arts, from its political and literary movement to its world-renowned filmmaking practice, from the changing role of woman in Italian society to its religious evolution, from its history of invasion and exploration to its “Made in Italy” international appeal and marketing. Topics may be added and perspectives changed as the contemporary Italian and European context evolve. The course will be conducted in a seminar setting where students may report on the specific issue and subject researched. Students will take part in reading and critical evaluation of peer work and individually prepare an oral presentation on a selected theme that elicits their interest.

FORMAT: Lecture/seminar

PREREQUISITE: ITAL 2100XY/O or permission of instructor

ITAL 3600.03: Italian National Cinema.

This course will discuss and critically assess selected topics of Italian cinema. Its aim to investigate Italian film production within the context of contemporary culture. The focus of the course: the Italian cineastes, who received international recognition since the 1960s. Its aim to investigate Italian film production within the context of contemporary culture.

FORMAT: Lecture

CROSS-LISTING: THEA 3320

Italian Studies 269
ITAL 3700.03: Topics in Italian Drama and Spectacle. 
This course focuses on Italian drama and performance. The text will vary from year to year and may include topics such as Italian Renaissance theatre, the Commedia dell’arte, Pirandello’s productions and contemporary Italian spectacle. The course will examine the selected topic while placing Italian theatre into a broader European context; students will acquire reading strategies for drama and spectacle and learn to consider the works form a theoretical perspective. The class is held in English but Italian majors will be required to read the texts in the original.
FORMAT: Lecture
CROSS-LISTING: THEA 3944.03

ITAL 4010.03: Advanced Composition.
This course addresses issues of syntax and grammar, register and style, and advanced vocabulary for both creative and academic writing. It will have both a theoretical and a practical component and will be writing intensive. Students will exercise advanced reading skills, advanced grammar skills (using sophisticated Italian syntax and morphology), and advanced composition skills (from structuring a creative piece of work to essay composition and completion). Compositions will address Italian literary and cinematic works. Students will work both in groups and individually. The course will be given in a workshop format, and student participation is essential to its success. It is recommended that students read Italian as much as possible (texts from mass media, popular fiction as well as academic material). Work in class and at home will include summaries, synopses, bullet-point schemes, writing and re-writing, peer reviewing, and related research.
FORMAT: Lecture/discussion
PREREQUISITE: ITAL 3010X or permission of instructor

ITAL 4040.03: Dante’s Inferno.
From Dante’s spiritual crisis to his descent into the pit of Hell and encounter with Satan, a journey of self-discovery, the Comedy is one of the world’s literature absolute masterworks and a summum of the medieval culture. This course offers a general knowledge of its first section, Inferno, and provides an introduction to medieval culture and history. Each class will involve reading from the text, commentary and discussions of the readings assigned. The course is taught in English. Italian minors and majors students will be required to read the texts in this course.
FORMAT: Lecture
PREREQUISITE: Any 2000 humanities course or instructor’s permission
CROSS-LISTING: CLASS 4460

ITAL 4060.03: Topics in the Civilization of Baroque Italy.
This course emphasizes the methods and sources historians employ to study Italian history, circa 1570-1740. Topics to be explored include Baroque Italian princely courts, Roman Catholicism, social interaction, social status and display, historical ecology and geography. There will be substantial use of translated and transcribed archival sources. A reading knowledge of French is recommended.
FORMAT: Lecture
CROSS-LISTING: THEA 4060.03

ITAL 4080.03: Independent Study.
Individually directed research and writing under the supervision of a member of department.
FORMAT: Seminar

ITAL 4989.03: Independent Study.
Individually directed research and writing under the supervision of a member of department.

ITAL 4999.03: Independent Study.
Individually directed research and writing under the supervision of a member of department.

Journalism

Contact Person: Director and Associate Professor, Kelly Toughill
Location: University of King’s College
Telephone: (902) 422-1271 Ext 183

I. Minor in Journalism Studies
See Minors in the College of Arts and Science section of this calendar. (Page 128)

II. Curriculum

A. Core Requirements
Students must complete one and a half full credits of core courses.

JOUR 1001X/Y.06: Foundations of Journalism.
This course gives students both a theoretical and practical introduction to journalism. In one part, students will learn how to read, listen and watch the news knowledgeably and critically. They will look at the history of journalism as it has developed in newspapers, radio, television and internet and examine how the structure of the media influence journalistic principles and practices. The other part of this course teaches students how to write imaginative and interesting prose using correct English and effective storytelling methods. Students will be required to write nearly every day and will have their work assessed by professional journalists.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
JOUR 2000.03: Basic Reporting Techniques.
Successful reporters need critical thinking as much as technical skills. This course builds on JOUR 1001 as it examines how reporters find news, select sources, cut through spin, verify information and avoid errors. Students will be introduced to techniques at the leading edge of the craft.
PREREQUISITE: JOUR 1001.06

B. Elective Requirements
Students must complete 1.5 credit hours in electives from the list below:

This course will introduce students to the history of radio, major figures in radio writing and reporting, emphasizing skills particular to radio such as writing for the ear and to deadline, interviewing for tape and on-air performance. Students will visit a radio news operation and examine policy, broadcast standards and ethical issues.
PREREQUISITE: JOUR 1001.06
RESTRICTION: This course is not available to students in the B[J]IN program.

JOUR 2400.03: Science and the Media.
From the first Babylonian astronomical records on canons to the public undermining of science on television, the various media have long been crucial to the success and spread of science. This course provides a history of science in the media from the ancient and medieval age of geometrical diagrams, astronomical figures and anatomical illustration through early modern printed texts, popular broadsheets and color botanical plates all the way to the ubiquity of science in literature, cinema and on the Internet. This expanding presence of science in the media is examined against the backdrop of three revolutions: literary and artistic (ancient and medieval worlds), mechanical (early modern period) and electronic (contemporary age). Specific themes considered include the increasing accuracy of scientific illustration, the rise of scientific journals, public scientific demonstrations, science in poetry and prose fiction, science and art, radio and television documentaries, the advertising and marketing of science, scientific special podcasts and techno-mystics, biometrics. Soviet art technological iconography, environmentalism and science-religion relations in the journalistic press, science fiction from J.G. Wolfe’s ‘War of the Worlds’ to Star Wars and Jurassic Park, and science in computing and cyberspace.
FORMAT: Lecture/semnar
CROSS-LISTING: HIST 2400.03

CROSS-LISTING: CLAS 4460
JOUR 3002.03: Introduction to Radio. This course will introduce students to broadcast news writing and reporting, emphasizing skills particular to radio such as writing for the ear and to deadline, interviewing for tape and on-air performance. Students will visit a radio news operation and examine policy, broadcast standards and ethical issues. PREREQUISITE: JOUR 1001.06

JOUR 3005.03: Broadcast Reporting. This course will introduce students to best practices in video and audio in news reporting. It will build on two broad courses to emphasize skills needed in radio, television, and online journalism. These include conversational scripting, writing for sound and picture, interviewing and on-air performance. Students will research, pitch and produce basic radio and television news stories, in teams and on their own. PREREQUISITE: JOUR 2000.03 or JOUR 2001.06 or permission from the instructor.

JOUR 3122.03: Ethics of Journalism. This course will discuss the power - and responsibility - of the mass media in shaping public opinion and public policy. Students will consider the various and conflicting roles of media in contemporary society. PREREQUISITE: JOUR 1001.06 or permission of the instructor

JOUR 3304.03: Through her Eyes: Women and the Documentary Tradition. This course will explore the nearly excluded historical and contemporary involvement of women in the field of documentary filmmaking. Women documentary makers have produced extensive bodies of engaging work that challenge many societal assumptions about gender, class, race, the function of political power, sexuality and peace-war. They have worked at every level within the process: as directors, cinematographers, editors, sound recordists, producers, writers and fund-raisers. A variety of documentaries made by women from diverse backgrounds will be screened and analyzed along with a close reading of selected critical texts. Students will identify the similarities and differences in subjects, themes, style, aesthetics, and approached to creation, production and distribution. FORMAT: Film Screening and Seminar

JOUR 3333.03: News Media and the Courts in Canada. This course is an introduction to the justice system and the specific roles that journalists have in covering and reporting on the legal system. The goal is to help students understand the importance of legal and ethical issues in historical and contemporary journalism. This course will focus on the role of journalists in covering legal events, including the historic development of this relationship. PREREQUISITE: JOUR 1001.06 or permission of the instructor.

JOUR 3340.03: Creative Nonfiction. Narrative nonfiction writing includes literary journalism, memoir and essay. In this introductory course, students will learn about the historic development of this genre as well as read and discuss some of the best examples of historical and contemporary narrative nonfiction. The goal is to make students better informed readers as well as to provide them with the tools to produce this kind of writing themselves. PREREQUISITE: JOUR 1001.06 or permission of the instructor.

JOUR 3441.03: Advanced Creative Nonfiction. This is a how-to course that focuses on writing - and rewriting - a major piece of narrative nonfiction. PREREQUISITE: JOUR 3440.03 RESTRICTION: This course is not available to B(ERS) students

JOUR 3540.03: Feature Writing. This course will introduce students to more creative writing aspects of journalism - the writing of stories behind the breaking news of the day, or the small human dramas that make up the world around us. Students will study feature writing styles and techniques, and experiment with several feature formats, from concept to subhead, that can be used on a substantial background articles. Students will produce a major, term-end feature story and several smaller assignments. PREREQUISITE: JOUR 2000.03 or JOUR 2001.06 or permission from the instructor

JOUR 3542.03: Business Reporting for Journalists. This course will give students a working knowledge of how business functions. It will provide students with the tools to analyze and present complex economic situations in clear language.

JOUR 3550.03: Copy Editing. In this course, students will focus on the skills-copy editors need to perform the most basic and essential of their tasks - handling stories. Students will edit, on paper and on screen, real stories selected for their potential as well as their problems. They will work on them for tightness, polish, accuracy and style. The goal is to help students develop the copy editor's "double vision" - the ability to see the story as a whole, and line by line, as a collection of parts, to see both the forest and the trees. This course is not only for students who want to become copy editors, but also for students who want to become better editors of their own writing. PREREQUISITE: JOUR 2000.03 or JOUR 2001.06

JOUR 3557.03: Introduction to Online Journalism. The Internet is still in its infancy as a journalistic medium, which creates opportunities for innovation as well as challenges for finding the best and most appropriate ways to communicate information. Students in this course will not only learn about the recent evolution of the Internet as a journalistic medium but will also explore for themselves ways of using the Internet to tell journalistic stories. PREREQUISITE: JOUR 1001.06 or permission of the instructor

JOUR 3560.03: Great Journalists. This course provides an introduction to some of the greatest journalists of all time. Students will discover the wonderful work these journalists created, and learn how and why they did it. This course also focuses on improving students' writing. By carefully considering great journalists' work, students learn techniques that make them better writers. Amazing characters-students will meet include James Cameron, the only journalist to have a ringside seat at three atomic bomb blasts. Students get to know Ida B. Wells, who founded a newspaper exposing lynchings and races when most media were ignoring the truth. Students will consider the work of Jon Dalton, Martin Selby, Peter Grose, Jesús y María, Martha Radford and many more. By the end of the course students will have a strong understanding of journalism's honorable legacy. They will know the brilliant qualities of great journalism, how hard they work, and how they changed the world. FORMAT: Writing Requirements (36h)

JOUR 3560.03: Photожournalism. This course will explore visual perception as applied to photography. Students will be taught to "see" photographs and explore ideas visually, especially how they relate to the essence of news photography. Students will also examine the beginnings of news photography and modern developments in the business. Students must have their own digital cameras to take this course.

JOUR 3670.03: Opinion Writing. Do you want to influence people with your perceptions, insights and ideas? If so, you need to know the difference between a rant and proving your point. You need to consider the tone and flow of what you write. Writing Opinion teaches these practices and more.
I. Minor in Law and Society
See Minors in the College of Arts and Science section of this calendar (page 128).

A. Required Courses

- LAWS 2500.06: Introduction of Law passed with a minimum of B-

This course, offered by the Law School exclusively to undergraduates, is designed
to introduce students to the workings of the Canadian legal system, and to the
basics of several fundamental areas of law. The focus of the course will be the
decisions which have been made by courts in Canada. There will be discussion of
what the law should be, which will occur in a context of understanding how courts
reason, and the principles that they bring to bear in reaching their decisions. The
course will look in particular at introductory case law concerning tort law (wrongs
by one person against another), personal property, criminal law, and the law as it
relates to Aboriginal peoples.
Enrolment is limited to students in their second year of undergraduate studies and
beyond.

INSTRUCTOR(S): S. Coughlan, D. Darling

FORMAT: Lecture/discussion 3 hours

B. Elective Requirements

Three full courses (18 credit hours) or equivalent from the approved list below,
including at least one half-course (three credit hours) from your choice of three
different disciplines (e.g., history, philosophy, political science, sociology,
contemporary studies, or international development studies). To count towards the
Minor, courses must be passed with a minimum of B-

- CTMP 3321: Representations of the Holocaust I
- CTMP 3322: Representations of the Holocaust II
- HIST 2006.03: The Atlantic World 1450-1650
- HIST 2007.03: The Atlantic World 1650-1800
- HIST 2221.03: Rough Justice - to the 1890s
- HIST 2222.03: Rough Justice - 1890s to the Present
- HIST 2223.03: Law and Justice in Canadian Society, to 1890
- HIST 2227.03: Criminal Law, Crime and Punishment, 1890 - present
- HIST 3226.03: Law and Justice in Canadian Society, to 1890
- HIST 3227.03: Criminal Law, Crime and Punishment, 1890 - present
- HIST 3501X/Y.06: Fascist and National Socialist Movements in Europe
- HIST 4004.03: Crime and Society in Post-Conquest England
- HIST 4253.03: Justice, Freedom and the State in 20th Century Canada
- INTD 2001: Intro to Development I
- INTD 2002: Introduction to Development II
- INTD 4000: Global Poverty and Human Development
- PHIL 2020.03: Legal Thinking
- PHIL 2106.03/GWST 2106.03: Philosophical Issues in Feminism
- PHIL 2455.03: Democracy, Difference and Citizenship
- PHIL 2475.03: Justice and Global Perspectives
- PHIL 2490.03: Social, Ethical and Professional Issues in Computer Science
- PHIL 3215.03: Philosophy of Law
- PHIL 4475.03: Contemporary Liberalism and Democracy
- POLI 2210.03: Unity and Diversity: Dynamics of Canadian Federalism
- POLI 2220.03: Political Power: Puritan Politics
- POLI 2350.03: Governance & Globalization
- POLI 2520.03: World Politics
- POLI 3206.03: Constitutional Issues in Canadian Politics
- POLI 3208.03: Canadian Provincial Policies
- POLI 3426.03/GWST 3426: Sex and the State**
- POLI 3428.03: Women as Citizens
- POLI 3440.03: The Politics of Fear
- POLI 3503.03: Human Rights: Institutional Foundations
- POLI 3521.03: The UN in World Politics
- POLI 3561.03: International Organization
- POLI 3581.03: Diplomacy and Negotiations
- POLI 3583.01: Politics of the Environment
- POLI 4301.03: Human Rights: Political Issues
- POLI 4401.03: Human Rights: Philosophical Issues
- POLI 4401.03: Thoreau of Violence, Persuasion and Genocide
- SOSA 2040.06: Social Inequality
- SOSA 2180.06: Sociology of Crime and Criminal Justice
- SOSA 2181.03: Explaining Crime and Criminal Behavior
- SOSA 2182.03: Sociology of Criminal Justice
- SOSA 3183.03: Native Peoples in North America
- SOSA 3223.03: Culture, Rights, Power
- SOSA 3273.03: Crime and Public Policy
- SOSA 3281.03: Youth Crime
- SOSA 3282.03: Sociology of Law
- SOSA 3283.03: Sociology of Criminal Law
- SOSA 3295.03: Society and the Police

*fulfills the PHIL requirement even if taken as GWST 2300
**fulfills the POLI requirement even if taken as GWST

Other Approved Electives
- COMM 2601: Legal Aspects of Business
- ENVL 3200.03: Environmental Law
- JURR 3133.03: News Media and the Courts
- LAWS 2112.03/2123.03: Canadian Legal History
- PSYJ 3224.03: Forensic Psychology
- PSYJ 4000.03: Senior Seminar (on a forensic topic)
II. Degree Programs

Although the Linguistics program is offered jointly by several universities, the degree is granted by the student’s home University. Students must meet the general requirements set by the University in which they are registered.

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125, of this calendar.

Core Program Requirements

• A two semester (full credit equivalent) Introduction to Linguistics, which can be taken at any of three institutions:
  • SMU LIN 2300.1 (Introduction to Linguistics) plus FREN 3020.1 (Introduction to French Linguistics) and FREN 3021.1 (Syntax) (taught in French);
  • Two to four of the following half-credit courses (or equivalent), depending on the specific degree:
    • SMU LIN 2310.1 (Phonology)
    • SMU LIN 2320.1 (Morphology)
    • SMU LIN 2330.1 (Syntax)
    • SMU LIN 2340.1 (Semantics)


A. BA with Honours in Linguistics

An honours degree is strongly recommended for students who plan to do graduate work in linguistics. Students must have a GPA of 3.0 or better for admission to the honours program, and must maintain a GPA of 3.0 or better in courses contributing to their honours degree in linguistics.

All Dalhousie honours programs must include Honours Qualifying Examination admission, usually taken the first year of a research paper. Consult the program coordinator.

Program Requirements

• A minimum of 10 credits. These must include:
  • Two semesters (full credit equivalent) Introduction to Linguistics, listed under Core Program Requirements (above);
  • All four of the half-credit courses (or equivalent), listed under Core Program Requirements (above);
  • One credit selected with the advice of the program coordinator. In addition to regularly scheduled courses, special topics / directed readings, computer language courses and / or intermediate level formal logic courses may be recommended here;
  • The equivalent of an one-credit second (or foreign) language course at the intermediate level; and,
  • Five credits selected from the list of linguistics courses offered at Dalhousie, and neighboring universities (see the list of options below).

B. Combined Honours in Linguistics

Combined honours programs with Linguistics may be arranged with other departments.

C. BA (20 credit) Major in Linguistics

Students who may not be eligible for the Honours Program are encouraged to enter the 20 credit Major program. Consult the program coordinator.

Program Requirements

• A minimum of six full credits, at least three credits of which must be at the 3000 level or above. These must include:
  • A two semester (full credit equivalent) Introduction to Linguistics, listed under Core Program Requirements (above);
  • Two of the half-credit courses (or equivalent), listed under Core Program Requirements (above);

• The equivalent of one full credit selected with the advice of the program coordinator. This requirement may be met by regularly scheduled courses listed or cross-listed as linguistic courses, by special topics / directed readings courses in linguistics, by second year (intermediate) courses in a language other than the student’s first language or in formal logic, or by a computer language course; and,
  • Three full credits selected from the list of options below.

II. Halifax Interuniversity Program in Linguistics

Halifax area universities offer a joint program in linguistics. Students enrolled in this program take courses from Dalhousie and Saint Mary’s University prior to enrolling in such courses. See requirements for the degree (A letter of permission to do so should be secured before doing so).

This program takes courses from Dalhousie and Saint Mary’s University prior to enrolling in such courses. See requirements for the degree (A letter of permission to do so should be secured before doing so).


D. BA (20 credit) Double Major in Linguistics

Program Requirements
A minimum of four full credits, as outlined below. At least two of the four credits must be at or above the 3000 level. These must include:
- A two semester (full-credit equivalent) Introduction to Linguistics, listed under Core Program Requirements (above);
- Two of the half-credit courses (or equivalent), listed under Core Program Requirements (above);
- The equivalent of one full credit selected with the advice of the program coordinator. This requirement may be met by regularly scheduled courses listed or cross-listed as linguistic courses, by special topics / directed readings courses in linguistics, by second year (intermediate) courses in a language other than the student’s first language or in formal logic, or by a computer language course; and,
- One full credit selected from the list of options below.

E. BA (15 credit) Concentration in Linguistics

Program requirements
A minimum of four full credits, as outlined below. At least two of the four credits must be at or above the 3000 level.
- A two semester (full-credit equivalent) Introduction to Linguistics, listed under Core Program Requirements (above);
- Two of the half-credit courses (or equivalent), listed under Core Program Requirements (above);
- The equivalent of one full credit selected with the advice of the program coordinator. This requirement may be met by regularly scheduled courses listed or cross-listed as linguistic courses, by special topics / directed readings courses in linguistics, by second year (intermediate) courses in a language other than the student’s first language or in formal logic, or by a computer language course; and,
- One full credit selected from the list of options below.

III. Options

A. Courses Offered at Dalhousie University

Contemporary Studies
- CTMP 2404.02: Semiotics
- CTMP 4115.05: Language and Politics: The Linguistic Turn in Contemporary Political Thought

English
- ENGL 2201.06: The English Language
- ENGL 3007.06: Old English

French
- Unless specifically indicated otherwise, all courses are taught in French. See CTMP 4115.05 (above) for exceptions.
- FREN 3023.03: Linguistics: Introduction to Acadia Dialectology
- FREN 4026.03: Quebec French
- FREN 4040.03: History of French: The Middle Ages
- FREN 4040.03: History of French: The Modern Period
- FREN 4041.05: Lexicology
- FREN 4041.05: Aspects of French Structure
- FREN 4041.05: Pragmatics
- FREN 4041.05: Language and Society
- FREN 4041.05: Advanced Translation into English
- FREN 4041.05: Introduction to Applied Linguistics and Language Teaching (taught in English)
- FREN 4047.05: General Translation
- FREN 4047.05: Electronic Tools and Resources for French (taught in English)

Philosophy
- PHIL 3309.03: Philosophy of Language
- PHIL 4316.03: Topics in the Philosophy of Language

Psychology
- PSYO 3002.03: Sensory Neuroscience II: Hearing and Speech
- PSYO 3093.03: Language & Literacy
- PSYO 3190.03: Psycholinguistics
- PSYO 3790.03: Neurolinguistics

Russian
- RUSE 4000.06: The Structure of Contemporary Standard Russian

Sociology
- SOCA 3081.03: Sociolinguistics

Spanish
- SPAN 3080.03: Phonetics
- SPAN 3085.03: Evolution of Spanish

B. Courses offered at Saint Mary's University (SMU)

Anthropology
- SMU ANT 3289.12: Introduction to Human Communication
- SMU ANT 3291.12: Introduction to Linguistic Anthropology
- SMU ANT 3292.12: Language, Culture and Society
- SMU ANT 3399.12: Language and Issues in Northern Canada
- SMU ANT 4409.12: Ethnography of Communication
- SMU ANT 4492.12: Anthropological Analysis of Linguistic Communities

English
- SMU EGL 2811.12: Modern English Language
- SMU EGL 3312.12: Modern English Language in Canada
- SMU EGL 3402.0: History of the English Language
- SMU EGL 2508.12: English Prose Style from 1500
- SMU EGL 4400.0: Discourse Analysis

French
- SMU FRE 3312.12: French Phonetics
- SMU FRE 3341.12: Linguistic Study of French
- SMU FRE 3360.12: Acadia Language and Culture
- SMU FRE 4440.12: Canadian French: Sociolinguistic Perspectives

Linguistics
- SMU LIN 4410.12: Directed Readings in Linguistics I
- SMU LIN 4411.12: Directed Readings in Linguistics II
- SMU LIN 4531.12: Special Topics in Linguistics I
- SMU LIN 4532.12: Special Topics in Linguistics II
- SMU LIN 3341.12: Advanced Morphology
- SMU LIN 3342.12: Comparative Linguistics

Philosophy
- SMU PHI 402.12: Philosophy of Language: Meaning
- SMU PHI 403.12: Philosophy of Language: Speech Acts

Sociology
- SMU SOC 3316.12: Language Change and Social Change
- SMU SOC 3366.12: Field Methods in Linguistics I
- SMU SOC 3375.12: Field Methods in Linguistics II
- SMU SOC 4417.0: Seminar on Endangered Languages

Women’s Studies
- SMU WMS/EGL 3427.12: Language and Gender
- SMU WMS/EGL 3427.12: Language, Gender and Power

THEA 4800X/Y:06: Acting IV

The culminating course of the Acting Program focuses on the rehearsal and performance of three DalTheatre shows and a Class Project. This course provides students with the opportunity to earn their Honours credit by preparing professional portfolios and audition pieces under the tutelage of the Acting Program faculty. The class project is directed by an Acting Program faculty member and all written requirements for both the DalTheatre season and the class project assessed by the Acting Program faculty. In its twofold function, this course is a bridge to the Acting profession.

NOTE: Students taking 4800X/Y:06 must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.
THEA 4840X/Y.06: Advanced Performance Techniques
This fourth-year Acting course is intended to provide production-related and movement instruction that will assist students with developing skills and techniques which can be applied in the DalTheatre season as well as in the professional theatre world. Production-related instruction may vary from year to year, depending on the specific needs of each DalTheatre season.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lab/lecture 3 hours
CO-REQUISITE: THEA 4840X/Y.06
THEA 4900X/Y.06: Theory and Criticism of Drama and Theatre
This is a writing intensive course that tackles the problems of evaluating theatre. It investigates critical strategies of the past and judges today’s theatre criticism. Students will practice the craft of criticism and debate the role of theatre theory for contemporary audiences.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar 3 hours
CO-REQUISITE: Permission of the instructor
THEA 4921.03: Special Topics II
In this seminar course, students focus on a particular topic in dramatic literature, film studies, theatre history, dramatic theory, or a related interdisciplinary subject, and investigate it in great detail. The topic is assigned by the School of Performing Arts at the end of the preceding academic year and is then posted at the School and in the Faculty’s timetable.
FORMAT: Seminar 3 hours
THEA 4922.03: Topics in Theatre History
In this seminar course, students focus on a particular topic in the field of theatre history and investigate it in great detail. The topic is assigned by the School of Performing Arts at the end of the preceding academic year and it is then posted at the School and in the Faculty’s timetable.
FORMAT: Seminar/discussion
THEA 4923.03: Topics in Dramatic Literature
In this seminar course, students focus on a particular topic in the field of dramatic literature and investigate it in great detail. The topic is assigned by the Department at the end of the preceding academic year and it is then posted at the Department and in the Faculty’s timetable.
FORMAT: Seminar/discussion
PREREQUISITE: Permission of the instructor
THEA 4931.03: Contemporary Theatre
This course will deal with the most recent developments in theatre, especially with those post-1970’s trends that exercise a broad international influence. Each year, our investigation will begin with a brief look at postmodern theatre and cover topics such as performance art, physical theatre, and postdramatic theatre. The main focus of the course, however, will be dictated by what is currently happening on major stages across the world and may significantly change from one year to another. In the interests of a comprehensive and exclusive approach to the subject, both commercial and experimental theatre will be studied, and we will also examine some relevant works of criticism and theory. Since much of the material required for this course is not yet removed enough from our time to be accessible in scholarly literature, students should be prepared for alternative methods of research.
FORMAT: Lecture/seminar, 5 hours
THEA 4940X/Y.06: Theory and Criticism of Drama and Theatre
This is a writing intensive course that tackles the problems of evaluating theatre. It investigates critical strategies of the past and judges today’s theatre criticism. Students will practice the craft of criticism and debate the role of theatre theory for contemporary audiences.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture/seminar/discussion
THEA 4922.03: Topics in Theatre History
In this seminar course, students focus on a particular topic in the field of theatre history and investigate it in great detail. The topic is assigned by the School of Performing Arts at the end of the preceding academic year and it is then posted at the School and in the Faculty’s timetable.
FORMAT: Seminar/discussion
THEA 4923.03: Topics in Dramatic Literature
In this seminar course, students focus on a particular topic in the field of dramatic literature and investigate it in great detail. The topic is assigned by the Department at the end of the preceding academic year and it is then posted at the Department and in the Faculty’s timetable.
FORMAT: Seminar/discussion
THEA 4931.03: Contemporary Theatre
This course will deal with the most recent developments in theatre, especially with those post-1970’s trends that exercise a broad international influence. Each year, our investigation will begin with a brief look at postmodern theatre and cover topics such as performance art, physical theatre, and postdramatic theatre. The main focus of the course, however, will be dictated by what is currently happening on major stages across the world and may significantly change from one year to another. In the interests of a comprehensive and exclusive approach to the subject, both commercial and experimental theatre will be studied, and we will also examine some relevant works of criticism and theory. Since much of the material required for this course is not yet removed enough from our time to be accessible in scholarly literature, students should be prepared for alternative methods of research.
FORMAT: Lecture/seminar, 5 hours
I. Beginning in Philosophy

There are many different ways of beginning in philosophy. The Dalhousie Philosophy Department offers three sorts of courses for beginners: (1) general survey introductions, which will give you a taste of a variety of questions and answers; (2) introductions to special areas; (3) logic, which is the study of the theory and techniques of good reasoning. Students wishing to major in philosophy are encouraged to begin with Introduction to Philosophy (either PHIL 1000.06, or PHIL 1010.06) in which a wide range of philosophical issues are discussed. But any student in any year may begin philosophy with a course that has no prerequisites. These include the 1000 level courses and many of the courses at the 2000 level. Although any of the 2000 level non-prequisite courses provide the student with a good introduction to philosophical thinking, by far the best introduction is provided by the fall year introduction (PHIL 1000 or 1010). Some 2000 level courses have prerequisites, which can be met either by a philosophy course or a course in another relevant discipline. The King’s College Foundation Year satisfies the requirement of a previous philosophy course. Courses at the 3000 level and beyond usually have further requirements. See the course descriptions below.

II. Degree Programs

All students planning to take a degree in philosophy are encouraged to talk to an undergraduate advisor; those planning to do an honours degree must consult with the honours advisor. Students who intend to specialize in philosophy should take an honours degree, the normal preparation for graduate study in philosophy.

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar.

Note: In the statement of program requirements and prerequisites, “credit” means one full credit (six credit hours).

Not all courses are offered every year. Please consult the current timetable to determine if these courses are offered.

Detailed descriptions are available from the department website at philosophy.dal.ca. The Honours application form is available online at http://www.registrar.dal.ca.

A. BA with Honours in Philosophy

See BA Concentrated Honours under Degree Requirements.

Students interested in Honours Programs are encouraged to apply by the middle of their third year. Please contact Honours Advisor. The Honours application form is available online at http://www.registrar.dal.ca.

Departmental Requirements

At least 10 credits in Philosophy of which at least nine and no more than 11 are beyond the 1000 level.

Select at least six credit hours from the following:

Philosophy (logic): 2130.03, 2660.03, 3635.03, 3640.03, 3650.03

Philosophy (history): 2350.03, 2610.03, 2620.03, 3110.03, 3115.03, 3630.03, 3650.03

Philosophy (logic): 2130.03, 2660.03

Select at least three credit hours from the following:

Philosophy (logic): 2130.03, 2660.03

Select at least three credit hours from the following:

Philosophy (history): 2350.03, 2610.03, 2620.03, 3110.03, 3115.03, 3630.03, 3650.03, 3640.03, 3600.03

At least two credits at or above the 3000 level including a half credit in epistemology (3051.03) and a half credit in ethics (3105.03)...

C. BA (20 credit) Major in Philosophy

See BA Major (20 credit) under Degree Requirements.

Departmental Requirements

At least six and no more than nine credits in Philosophy beyond the 1000 level, including three credits beyond the 2000 level.

Select at least three credit hours from the following:

Philosophy (logic): 2130.03, 2660.03

Select at least six credit hours from the following:

Philosophy (history): 2350.03, 2610.03, 2620.03, 3110.03, 3115.03, 3630.03, 3650.03, 3640.03, 3600.03

At least three credits at or above the 3000 level including a half credit in epistemology (3051.03) and a half credit in ethics (3105.03)...

D. BA (20 credit) Double Major

See BA (20 credit) Double Major under Degree Requirements.

Departmental Requirements

At least six and no more than eight credits in Philosophy beyond the 1000 level, including three credits beyond the 2000 level.

Select at least three credit hours from the following:

Philosophy (logic): 2130.03, 2660.03

Select at least six credit hours from the following:

Philosophy (history): 2350.03, 2610.03, 2620.03, 3110.03, 3115.03, 3630.03, 3650.03, 3640.03, 3600.03

At least two credits at or above the 3000 level including a half credit in epistemology (3051.03) and a half credit in ethics (3105.03)...

E. BA (15 credit) Minor in Philosophy

See Minors in the College of Arts and Science section of this calendar (page 128).

F. Minor in Philosophy

See Minors in the College of Arts and Science section of this calendar (page 128).

G. Minor in Applied Ethics

See Minors in the College of Arts and Science section of this calendar (page 128).

H. Minor in Bioethics

See Minors in the College of Arts and Science section of this calendar (page 128).

III. Course Descriptions

NOTE: Many courses are listed as being exclusionary to one another. This means that students may not take both courses as designated.

PHIL 1000XY06: Introduction to Philosophy. An introduction to a variety of philosophical problems, such as the relation of mind to body, freedom of the will, the foundations of morality, the existence of God, the nature of personal identity, and the possibility of knowledge based on reason and experience. Sections differ somewhat in approach and requirements.
PHIL 2130.03: Logic: Deduction.  
A systematic introduction to the operations of formal deductive logic, with considerable attention devoted to the relation between artificial and natural language; and to the philosophical problems that arise from the study of reasoning. (No previous study of logic is presupposed.)

PHIL 2160.03: Philosophical Issues of Feminism.  
An exploration and examination of some of the concepts, issues, and arguments underlying feminist claims and perspectives. (Note: this course does not count towards satisfying the logic requirement for the major or honours program.)

PHIL 2170.03: Philosophy of Sex and Love.  
Philosophers have long been interested in the nature of intimate human relations. This course offers an examination of key concepts and questions related to love and sexual desire. Topics will include the nature of desire, of romantic love, and of sexual orientation. We will take up questions in sexual ethics and politics, and look at selected concepts such as truth and betrayal, sexual objectification, and perversion.

PHIL 2210.03: Crisis and Consent: Foundations of Political Thought: 1651-1778.  
This course will explore a variety of ethical questions associated with the study and practice of science. Students will learn about the nature of philosophical approaches to ethics and how to apply these insights to the tasks of recognizing and reflecting on ethical issues that arise when engaging in scientific research and practice. One section of this course is offered as part of the Dalhousie Integrated Science Program, that relate to the specific scientific topics studied within that program where it serves as one-half of the writing requirement for first year students and is available to DISP students only.

PHIL 2220.03: Philosophy of Religion.  
Monothestic religions (such as Judaism, Christianity, and Islam) assert the existence of a single God. This course addresses philosophical problems posed by traditional monotheism. Why care whether monotheism is true? Why care whether belief in God is rational? Does the rationality of belief in God depend on the evidence for and against God’s existence? What is the best evidence for and against? What bearing does God have on human morality? (Note: credit can only be given for one course, either PHIL 2205 or PHIL 2220.03.)

PHIL 2205.03: Philosophy of Religion.  
Ethics in Science.  
An introduction to ethical questions that arise in the practice of science. The course will explore a variety of ethical questions associated with the study and practice of science. Students will learn about the nature of philosophical approaches to ethics and how to apply these insights to the tasks of recognizing and reflecting on ethical issues that arise when engaging in scientific research and practice. One section of this course is offered as part of the Dalhousie Integrated Science Program, that relate to the specific scientific topics studied within that program where it serves as one-half of the writing requirement for first year students and is available to DISP students only.

PHIL 2260.03: Philosophy of Art.  
This course is devoted to developing the practical skills involved in evaluating reasoning and producing convincing arguments. Note: this course does not count towards satisfying the logic requirement for the major or honors program.

PHIL 2361.03: Ancient Philosophy: from Thales to Plato.  
See course descriptions for CLAS 2561.03 in the Classics section of this Calendar.
PHIL 2472.03: Justice in Global Perspective.
In this course, we will explore answers to the central question in philosophical ethics: “How should we live our lives and interact with others?” in the context of the international community or “Global Village” in which we now live. The course will involve close reading and analysis of liberal and non-liberal theories from around the world on the subjects of: moral rights, the nature of justice, social well-being, human diversity and aqua life, and the nature of social responsibility. Specific topics may include: the impact of globalization on understanding of moral rights, human rights, labour rights, language rights, etc.; third world responses to western conceptualizations of rights; new conceptions of justice and social transformation including conceptions of restorative justice, conceptualizations of race and ethnicity and sources of personal and communal identity; the nature and importance of autonomy; the importance of different cultural conceptions of gender and the problem of sexual violence in a global perspective; and frameworks for understanding shared agency and shared responsibility for poverty and environmental degradation.

PHIL 2480.03: Environmental Ethics.
This course examines humanity’s relation to nature from a philosophical perspective. Of particular importance will be the moral or ethical obligations which humanity may have towards the natural environment. Attention will be given to the historical sources of the attitudes and values which have given rise to current ecological problems in the environment, as well as to the question of how to remediate our relationship to nature. We will read from environmental holists, biocentrics, ecofeminists, deep ecologists, and others, and discuss issues concerning animal rights, environmental justice, and activism.

PHIL 2485.03: Technology and the Environment.
What is technology and what role does it play in current environmental problems? Can technologies help us find solutions to environmental crises, or are those problems themselves a direct result of seeing the world from a technological point of view? In this course, we will assess the environmental impact of particular technologies (e.g., fossil fuel technologies, pharmaceutical and information technologies) and discuss sustainable alternatives and appropriate technologies in developing as well as developed nations.

PREREQUISITE: Permission of the instructor.
FORM: Lecture/discussion
CROSS-LISTING: ENVS 2485.03

PHIL 2490.03: Social, Ethical and Professional Issues in Computer Science.
Computers can enable people to do things that our current laws and policies were not formulated to cover (hacking, sharing files on the internet, and companies sharing data). In such cases, people need to be able to decide for themselves the best course of action, and define such decisions. This course aims at developing the ethical reasoning skills and sensitivities that computer professionals will need to make good decisions and to justify them. The course includes a general introduction to ethical theory and their use in making and justifying decisions.

We then consider various issues and case studies, illustrating the kinds of problems that can arise from the use and misuse of computers and technology: the responsibilities of computer professionals; ethics on the internet (hacking, computer crime, netiquette); privacy and information; intellectual property; social and political issues (digital divide, computers and work, the internet as a democratic technology).

PREREQUISITE: No previous knowledge of computing or of philosophy is assumed. Some familiarity with computers is an advantage.
FORM: Lecture/discussion
CROSS-LISTING: CS/CSCI 3101.03
EXCLUSION: COMP 3900.03

PHIL 2506.03: Minds and Machines: Introduction to Cognitive Science.
Could we build a robot (or program a computer) that has a mind? What is the relationship between the mind, brain, body and the world? How can technology assist cognition? In what ways are human cognitive systems similar to and different from animal cognitive systems? This course takes a philosophical approach, introducing assumptions and issues arising in research at the interactions of artificial intelligence, robotics, neuroscience, psychology, linguistics, animal cognition, evolutionary biology, and philosophy. This is a useful complement to a course in any Cognitive Science discipline, as well as a fascinating investigation of cognition for anyone who has wondered about what the human mind is and how it works.

PREREQUISITE: None.
FORM: Lecture/discussion
CROSS-LISTING: ENVS 2506.03
EXCLUSION: PHIL 3460

PHIL 2610.03: History of Philosophy: The Rationalists.
The philosophy of Descartes, Spinoza, and Leibniz.
PREREQUISITE: One previous credit in philosophy or permission of the instructor.
FORM: Lecture/discussion

PHIL 2620.03: History of Philosophy: The Empiricists.
The philosophy of Locke, Berkeley, and Hume, with an introduction to Kant.
PREREQUISITE: One previous credit in philosophy or permission of the instructor.
FORM: Lecture/discussion
PHIL 2650.X: Modern German Philosophy.
This course provides a broad survey of the major philosophical themes from the Enlightenment to the present. It focuses on the major figures of German philosophy and on the major philosophical movements of the 19th and 20th centuries. Students will gain a broad overview of the major philosophical traditions in Germany.
FORM: Lecture/tutorial
CROSS-LISTING: GERM 2650.06
PHIL 2651.03: Modern German Philosophy I.
The course will explore the major themes of German philosophy from the Enlightenment to the end of the 19th century. It will cover the major figures and movements of German philosophy from the 18th century to the 20th century. Students will gain a broad overview of German intellectual history.
FORM: Lecture/seminar
CROSS-LISTING: GERM 2651.03
EXCLUSION: GERM/PHIL 2650.06
PHIL 2652.03: Modern German Philosophy II.
The course will focus on the major figures and movements of German philosophy from the 20th century to the present. Students will gain a broad overview of the major philosophical traditions in Germany.
FORM: Lecture/seminar
CROSS-LISTING: GERM 2652.03
EXCLUSION: GERM/PHIL 2650.06
PHIL 2660.03: Logic: Understanding Scientific Reasoning.
The course is a general introduction to the methods of evaluating hypotheses, experimental tests, and reasoning in science with applications to everyday reasoning as well. The course is divided into four units of three kinds of evaluation: formal hypotheses, statistical and causal hypotheses, and decisions. No background in science or philosophy is presupposed for this course.
FORM: Lecture/discussion
EXCLUSION: PHIL 1050.03
PHIL 2680.03: Ethics in Science.
An introduction to the ethical issues involved in the practice of science. The course will explore the major ethical questions associated with the study and practice of science. Students will learn about the nature of philosophical approaches to ethics and how to apply these insights to the tasks of recognizing and reflecting on ethical issues that arise when engaged in scientific research and practice.
FORM: Lecture
EXCLUSION: PHIL 1050.03
PHIL 2710.03: Existentialism.
The existentialists focus on what is individual and unique about human lives. They emphasize the sense in which we choose projects and lives and even deaths for ourselves and find self-definition in our ways of avoiding choices. Some existentialists argue that whatever meaning our lives have must be invented. Some contend that life is absurd. This course is an introduction to the themes of existentialism through the study of the philosophy and fiction of Dostoevsky, Nietzsche, Sartre, Camus, and Simone de Beauvoir.
FORM: Lecture/discussion
PHIL 2720.03: The Good Life: Well-Being, Meaning & Happiness.
This course is a survey of various ethical views in the history of Western Philosophy, concentrating on the issues facing people who are concerned with what human beings should aim for and do if they are to lead lives that are fulfilling.
FORM: Lecture/discussion
PHIL 2805.03: Ethics & Health Care: Patient Care.
How much information must health professionals provide to patients? Can they violate a patient's expressed wishes if they judge a patient to be not fully competent? Should doctors be permitted to end the life of patients when the patient cannot make decisions? This course will explore questions of this nature through a combination of lecture and discussions. Students are encouraged to take this course in conjunction with PHIL 2810.05.
FORM: Lecture/discussion
PHIL 2810.03: Ethics & Health Care: Social Policy.
Should the state regulate medical decision making? Should the state permit all medical practices? What should the state do to regulate the use of human and animal subjects in medical research? What criteria should the state use to regulate the use of medical technology? The course will focus on the ethical issues that arise in the context of medical and health care policy.
FORM: Lecture/discussion
PHIL 3051.03: Epistemology.
A study of fundamental issues in the contemporary theory of knowledge. The course examines skepticism and explores the nature of knowledge, belief, meaning, evidence, and truth. Questions raised about perception and memory and their relation to knowledge.
FORM: Lecture/discussion
PREREQUISITE: Two of PHIL 2610.03, PHIL 2620.03, 2310.03 or permission of the instructor.
CROSS-LISTING: PHIL 3051.03
PHIL 3105.03: Ethics.
A systematic study of the foundations of morality, including readings from Kant, Foundations of Metaphysics and Morals and Hum, A Treatise of Human Nature.
FORM: Lecture/discussion
PREREQUISITE: Two previous credits in philosophy or permission of the instructor.
CROSS-LISTING: PHIL 3105.03
PHIL 3110.03: History of Ethics: Plato to Epicurus.
This course will consider Plato and the early Greek philosophers, focusing on the ethical issues that arise in the context of medical and health care policy.
FORM: Seminar
PHIL 3115.03: History of Ethics: Kant's Moral Theory.
This course will examine the moral theories of Immanuel Kant. It will explore the ethical theories of Immanuel Kant and other key figures in the history of modern philosophy.
FORM: Lecture/discussion
PREREQUISITE: Two previous credits in philosophy or permission of the instructor.
PHIL 3140.03: Logic: Logical Theory I.
An introduction to non-classical logics from a formal perspective.
FORM: Lecture/discussion
CROSS-LISTING: GNTS 3100.03, PHIL 5140.03
PREREQUISITE: Two previous credits in philosophy.
PHIL 3150.03: Contemporary Feminist Theories.
A study of feminist theories of gender and women's studies. This is an introduction to feminist theories of gender and women's studies.
FORM: Seminar
CROSS-LISTING: GNTS 3150.03, PHIL 5150.03
PREREQUISITE: Two previous credits in philosophy or permission of the instructor.
PHIL 3211.03: Philosophy of Law.
A study of the nature and scope of the field of philosophy of law, including topics such as law and morality, law and society, and law and politics.
FORM: Seminar
CROSS-LISTING: PHIL 5211.03
PREREQUISITE: Two previous credits in philosophy or permission of the instructor.
PHIL 3250.03: Modern German Philosophy.
This course provides a broad overview of the major philosophical themes from the Enlightenment to the present. Students will gain a broad overview of the major philosophical traditions in Germany.
FORM: Lecture/tutorial
CROSS-LISTING: GERM 2650.06
PHIL 3710.03: Contemporary Feminist Theories.
A study of feminist theories of gender and women's studies. This is an introduction to feminist theories of gender and women's studies.
FORM: Seminar
CROSS-LISTING: GNTS 3710.03, PHIL 5710
PREREQUISITE: Two previous credits in philosophy or permission of the instructor.
CROSS-LISTING: PHIL 5211.03
PREREQUISITE: Two previous credits in philosophy or permission of the instructor.
CROSS-LISTING: PHIL 5211.03
FORM: Seminar
PHIL 3720.03: Contemporary Feminist Theories.
A study of feminist theories of gender and women's studies. This is an introduction to feminist theories of gender and women's studies.
FORM: Seminar
CROSS-LISTING: GNTS 3720.03, PHIL 5720
PREREQUISITE: Two previous credits in philosophy or permission of the instructor.
CROSS-LISTING: PHIL 5211.03
PREREQUISITE: Two previous credits in philosophy or permission of the instructor.
CROSS-LISTING: PHIL 5211.03
FORM: Seminar
PHIL 3750.03: Modern German Philosophy.
This course provides a broad overview of the major philosophical themes from the Enlightenment to the present. Students will gain a broad overview of the major philosophical traditions in Germany.
FORM: Lecture/tutorial
CROSS-LISTING: GERM 2650.06
PHIL 3850.03: Ethics & Health Care: Social Policy.
This course provides a broad overview of the major ethical issues involved in the practice of medicine. The course will explore the major ethical questions associated with the study and practice of medicine. Students will learn about the nature of philosophical approaches to ethics and how to apply these insights to the tasks of recognizing and reflecting on ethical issues that arise when engaged in medical research and practice.
FORM: Lecture/discussion
EXCLUSION: GERM/PHIL 2650.06
PHIL 3950.03: Ethics & Health Care: Social Policy.
This course provides a broad overview of the major ethical issues involved in the practice of medicine. The course will explore the major ethical questions associated with the study and practice of medicine. Students will learn about the nature of philosophical approaches to ethics and how to apply these insights to the tasks of recognizing and reflecting on ethical issues that arise when engaged in medical research and practice.
FORM: Lecture/discussion
EXCLUSION: GERM/PHIL 2650.06
PHIL 3300.03: Philosophy of Language. What does it mean to say that the elements of language have meaning? FORMAT: Lecture/discussion
PREREQUISITE: Two previous credits in philosophy including one half credit in logic, class, half or full-year
CROSS-LISTING: PHIL 5340.03

PHIL 3361.03: Ethics, Justice, and Economics. Assumptions of Neo-classical economic theory are critically examined, with a focus on the ethical and distributional consequences of using markets as an allocation mechanism. We discuss the major conceptions of economic justice, including utilitarianism and social choice theory, Rawlsian egalitarianism, Nozickian libertarianism, Sen's capabilities approach, and equality of opportunity. FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03, ECON 2201.03
CROSS-LISTING: ECON 3360.03, PHIL 5363.03

PHIL 3420.03: Philosophy of Biology. This course provides an up-to-date systematic examination of central issues in the philosophy of biology. Topics typically include: How can the Darwinian paradigm be taken to explain adaptive complexity? Is there a new emphasis on developmental theory likely to revolutionize evolutionary theory? What are the most fundamental units of selection? Can the concept of biological function be understood without attributing purpose to nature? Why is the concept of species so elusive? Is there a "human nature"? Is genuine altruism possible given the forces of selection? Is there progress in evolution? How should clashes between faith and reason over the nature of our evolution be resolved?
FORMAT: Lecture/discussion
PREREQUISITE: One previous credit in philosophy or biology
CROSS-LISTING: BIOL 3310.03, PHIL 5420.03

PHIL 3434.03: The Ancient Origins of Political Thought: From Homer to Aristotle. This class will study the very beginnings of political thought with Greek poets, historians and educators, culminating in a careful investigation of the political writings of Plato and Aristotle. We will investigate philosophical questions about the origin of the state, the purpose of political community, the different kinds of regimes or governments; the common good, individual freedom, revolution, war, wealth, poverty, and slavery.
FORMAT: Lecture/terminals
CROSS-LISTING: POLI 3434.03, CLAS 3434.03

PHIL 3445.03: Philosophy of Mind: The Mind-Body Problem. This course will critically examine philosophical and scientific articles, and possibly short works of fiction, which explore various theories, problems and arguments regarding the nature and status of the mind and body in the natural world and the relationships between mind, body and world. We will explore and discuss controversies regarding the thesis that the mind is (nothing but?) the brain, and issues such as the theoretical foundations of artificial intelligence, the problem of subjectivity and consciousness, "naturalized" intentionality (how thoughts—if they are physical things or processes)—can have the property of being about other things—and animal cognition.
FORMAT: Lecture/discussion
PREREQUISITE: Two previous credits in philosophy
CROSS-LISTING: PHIL 5445.03
EXCLUSION: PHIL 3440.03
CO-REQUIRE: none

PHIL 3450.03: Philosophy of Emotions. We will concentrate on the emergence of philosophical interest in the emotions over the last twenty years. Although it is obvious that much human action is emotionally driven, traditionally many philosophers have expressed skepticism about the value of emotions to rational and ethical conduct. Recently, philosophers such as Martha Nussbaum, Amelia Rorty and Ronald De Sousa have argued powerfully that rationality requires emotions. Other philosophers have argued that we need a renewed assessment of the epistemic importance of emotion in revealing present and future values. Topics will include emotional rationality, emotion and, legal and moral motivations, emotion and forms of rationality, and the embodiment of emotions.
FORMAT: Lecture/discussion
PREREQUISITE: At least one previous credit in philosophy including one half credit above the 1000 level
CROSS-LISTING: PHIL 5450

PHIL 3470.03: Human Rights: Philosophical Issues. This course surveys the major influential theories of human rights and why the practice of human rights may be problematic. We will consider the classical formulations of empirical and metaphysical theories of human rights, as well as current debates about the moral status of human rights. We will also consider the jurisprudential and legal theories of human rights. Finally, we will briefly consider the connections between human rights theory and international politics.
FORMAT: Lecture/discussion
PREREQUISITE: PHIL 3475.03
EXCLUSION: PHIL 3475.03
CROSS-LISTING: PHIL 5470.03

PHIL 3475.03: Democratic Theory. This course surveys the major influential theories of democracy and why the practice of democracy may be problematic. We will consider the classical formulations of democratic theories, as well as current debates about the moral status of democracy. We will also consider the jurisprudential and legal theories of democracy. Finally, we will briefly consider the connections between democratic theory and international politics.
FORMAT: Lecture/discussion
PREREQUISITE: PHIL 3470.03
EXCLUSION: PHIL 3470.03
CROSS-LISTING: PHIL 5475.03

PHIL 3476.03: Liberalism and Global Justice. This is a course in modern political theory. We will critically examine some recent normative political theory, and then examine the prospects and perils of attempts to recent liberal theory to articulate a principled vision of global justice. We will consider Kant's original bended-knuckle theory of justice and examine some challenges it faces from both cosmopolitan theories of justice and proponents of nationalism. Next we'll consider rival political conceptions of liberal international justice, and Rawls' response in the form of his recent The Law of Peoples. Concluding, we will examine specific issues of applied political justice (e.g., human rights and immigration) as well as issues of economic and social justice and poverty.
FORMAT: Lecture/discussion
PREREQUISITE: PHIL 3474.03, PHIL 5474.03
CROSS-LISTING: PHIL 5476.03

PHIL 3520.03: Philosophy of Social Science. Can people from different cultures understand each other? What is it to be a member of a culture? Are societies best thought of as collections of individuals, or are individuals constituted by societies? In what sense are the social sciences "sciences"? Are societies describable by explanatory laws? What counts as an explanation of human behaviour? This course explores these and related questions through a reading of classic and contemporary philosophers and social theorists. PREREQUISITE: two full credits in philosophy
CROSS-LISTING: POLI 3434.03, PHIL 5520.03

PHIL 3530.03: Freedom, Action, and Responsibility. An investigation of the nature of action seeking criteria for individualizing, foreseeing, and explaining actions. Topics may include the roles of will, intention, motives, and reasons in actions; responsibility for actions and the concept of free actions.
FORMAT: Lecture/discussion
PREREQUISITE: Two previous credits in philosophy
CROSS-LISTING: PHIL 5530.03

PHIL 3630.03: History of Philosophy: Kant. Special attention will be given to Kant’s metaphysics.
FORMAT: Lecture/discussion
PREREQUISITE: PHIL 2400.03, PHIL 2401.03, or permission of the instructor
CROSS-LISTING: PHIL 5630.03

PHIL 3635.03: History of Philosophy: 19th-Century Philosophy. This course will study major figures in 19th-century philosophy between Kant and Russell: Feible, Hegel, Schopenhauer, Marx, Kierkegaard, Mill, Nietzsche, James and Bradley. Attention will also be paid to some important figures in related arts and sciences (e.g., Beethoven, Wagner, Ibsen, Frege, Marx, Freud, Wittgenstein, Fugger, Schiller): What is the role of the concept of species in evolutionary theory? What is the nature of consciousness? Is consciousness a physical or a mental phenomenon? Can people from different cultures understand each other? What is it to be a member of a culture? Are societies best thought of as collections of individuals, or are individuals constituted by societies? In what sense are the social sciences "sciences"? Are societies describable by explanatory laws? What counts as an explanation of human behaviour? This course explores these and related questions through a reading of classic and contemporary philosophers and social theorists. PREREQUISITE: two full credits in philosophy
CROSS-LISTING: POLI 3434.03, PHIL 5635.03

PHIL 3640.03: History of Philosophy: Twentieth-Century Philosophy. The Twentieth Century has been a period of revolutionary change in Anglophone philosophy. This course surveys the major influential theories of human rights and why the practice of human rights may be problematic. We will consider the classical formulations of empirical and metaphysical theories of human rights, as well as current debates about the moral status of human rights. We will also consider the jurisprudential and legal theories of human rights. Finally, we will briefly consider the connections between human rights theory and international politics.
FORMAT: Lecture/discussion
PREREQUISITE: PHIL 2400.03 or 2401.03
CROSS-LISTING: PHIL 5640.03

PHIL 3660.03: Post-Modern Philosophy. Modern Philosophy is a philosophical perspective in which individuals and their conscious thoughts are paramount. Post-modern philosophy rejects this...
PHIL 3670.03: Philosophy of Science.
A study of topics such as the nature of substance and change, body and mind, cause and effect, and the concept of existence.

PHIL 3851.03: Metaphysics.
A study of topics including the nature of substance and change, body and mind, cause and effect, and the concept of existence.

PHIL 4055.03: Topics in Epistemology.
In this seminar course, students focus on a particular topic in epistemology and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4200.03: Topics in Normative Theory.
In this seminar course, students focus on a particular topic in normative theory and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4220.03: Contemporary Philosophical Issues.
PHIL 4470.03: Contemporary Liberalism and Democracy.

PHIL 4105.03: Contemporary Metaethics.
This seminar course surveys contemporary work in metaethics - the branch of moral philosophy concerned with the metaphysical, epistemological, semantic and psychological commitments of the moral discourse and practice.

PHIL 4190.03: Topics in the History of Philosophy I:
Wittgenstein.
In this seminar course, students focus on a particular topic in the history of philosophy and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4191.03: Topics in the History of Philosophy II.
In this seminar course, students focus on a particular topic in Modern Philosophy (e.g., the work of Locke or Hume) and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4192.03: Topics in the History of Philosophy III.
In this seminar course, students focus on a particular topic in Modern Philosophy (e.g., the work of Locke or Hume) and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4193.03: Topics in the History of Philosophy IV.
In this seminar course, students focus on a particular topic in Modern Philosophy (e.g., the work of Locke or Hume) and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4194.03: Topics in the History of Philosophy V.
In this seminar course, students focus on a particular topic in Modern Philosophy (e.g., the work of Locke or Hume) and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4195.03: Topics in the History of Philosophy VI.
In this seminar course, students focus on a particular topic in Modern Philosophy (e.g., the work of Locke or Hume) and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4196.03: Topics in the History of Philosophy VII.
In this seminar course, students focus on a particular topic in Modern Philosophy (e.g., the work of Locke or Hume) and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4197.03: Topics in the History of Philosophy VIII.
In this seminar course, students focus on a particular topic in Modern Philosophy (e.g., the work of Locke or Hume) and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4198.03: Topics in the History of Philosophy IX.
In this seminar course, students focus on a particular topic in Modern Philosophy (e.g., the work of Locke or Hume) and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4199.03: Topics in the History of Philosophy X.
In this seminar course, students focus on a particular topic in Modern Philosophy (e.g., the work of Locke or Hume) and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4200.03: Topics in Normative Theory.
In this seminar course, students focus on a particular topic in normative theory and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

PHIL 4220.03: Contemporary Philosophical Issues.

PHIL 4470.03: Contemporary Liberalism and Democracy.
Liberalism takes a variety of forms and includes many topics including the rule of law, limited government, the free exchange of goods, entitlement to property, the self, and individual rights. Its philosophical and political assumptions provide the intellectual context within which its account of the individual, its vision of the community and its preferred allocation of resources will be assessed.

FORMAL: Seminar
PREREQUISITE: Two full credits in philosophy or political science or permission of the instructor

CROSS-LISTING: POLI 4479.03/5479.03, ECON 4446.03/5446.03, PHIL 5470.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

FORMAL: Seminar

CROSS-LISTING: PHIL 5190.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5191.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5192.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5193.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5194.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5195.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5196.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5197.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5198.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5199.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5200.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5201.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5210.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5215.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: PHIL 5220.03

PREREQUISITE: At least two previous credits in philosophy or permission of the instructor

CROSS-LISTING: POLI 4479.03/5479.03, ECON 4446.03/5446.03, PHIL 5470.03
PHIL 4500.03: Topics in Feminist Philosophy.

In this seminar course, students focus on a particular topic in the Philosophy of Science and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

FORMAT: Seminar
PREREQUISITE: At least two previous credits in Philosophy or permission of the instructor
CROSS-LISTING: PHIL 5510.03

PHIL 4680.03: Topics in the Philosophy of Science.

In this seminar course, students focus on a particular topic in the Philosophy of Science and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

FORMAT: Seminar
PREREQUISITE: At least two previous credits in Philosophy or permission of the instructor
CROSS-LISTING: PHIL 5510.03

PHIL 4700.03: Philosophy of Race.

This course explores the metaphysics and ethics of race. Topics covered include: what “race” means, how old the concept is, whether races exist, what kinds of things races are, whether it is valuable to acknowledge one’s racial identity, and what counts as racism.

PREREQUISITE: At least two previous credits in Philosophy or permission of the instructor
CROSS-LISTING: PHIL 5680.03

PHIL 4801.03: Topics in the Philosophy of Science.

In this seminar course, students focus on a particular topic in the Philosophy of Science and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

FORMAT: Seminar
PREREQUISITE: PHIL 2800.06 or 2805.03 AND 2810.03 or permission of the instructor
CROSS-LISTING: PHIL 5855.03

PHIL 4850.03: Topics in Metaphysics.

In this seminar course, students focus on a particular topic in Metaphysics and investigate it in detail. When the course is offered, the topic is assigned by the Department at the end of the preceding academic year and is then posted at the Department and in the Faculty’s timetable on the Web.

FORMAT: Seminar
PREREQUISITE: At least two previous credits in Philosophy or permission of the instructor
CROSS-LISTING: PHIL 5855.03

PHIL 4940.03/4960.03/4980.03/4990.03/4970.06/4990.06: Directed Reading.

Consult department for details. In special cases, courses to suit individual interests can be developed jointly by a student and an instructor.

NOTE: Students taking PHIL 4970.XYY OR 4990.XXY must register in both X and Y in consecutive terms; credit will only be given if both are completed consecutively.

FORMAT: Individual instruction
PREREQUISITE: At least two previous credits in Philosophy or permission of the instructor
RESTRICTION: Students may only register for this class with the written permission of the faculty member

Political Science

Location: Henry Hicks Academic Administration Building, Room 301
PO Box 15000
Halifax, NS, B3H 4R2

Telephone: (902) 494-2996
Fax: (902) 494-3825

Website: http://www.politicalscience.dal.ca

Dean
Symmuthy-Murray, R., ATL, Dip (Trinity College, London), BA, MA (Cambridge), PhD (Oxon)

Chair of Department
Forbes, E. (Room 301B, 494-6602, email: e.forbes@dal.ca)

Undergraduate Advisor
Denike, M. (Room 332, 494-6602, email: m.denike@dal.ca)

PhD Coordinator
Henderson, A. (Room 301, 494-6802, email: anders.henderson@dal.ca)

Professors Emeriti
Boardman, B., BSc, PhD, DS (London), FRHistS (McCallum Professor in Political Science)

Cameron, D. M., BA (Queen’s), MA, MPhil, PhD (Toronto)

Eayrs, J. G., BA (Toronto), MA, PhD (Toronto), FRSC, OC

Stains, D. W., BA (Dalhousie), MA (Oxon), PhD (Toronto) FRSC, OC

Ward, F. R., BA, MA, PhD (Bowdoin), Dipl in Int. Law (Mian), PhD (NorthCar), FRSC

Professors
Black, D., BA (Teess), MA, PhD (Dalhousie)

Furback, K., BA (Alberta), MA, PhD (Auckland)

Forbes, E., BA (Dalhousie), MA (York), MSc, PhD (London)

Harvey, F., BA, MA, PhD (McGill)

Laursen, E., Cand. Scient. pol (Aarhus Univ.), PhD (Pann), Canada Research Chair in European Union Studies

Associate Professors
Atkinson, R. (Teess), BA (York), MA (Auckland), PhD (Auckland)

Cameron, D. M., BA (Queen’s), MA, MPhil, PhD (Toronto)

Harvey, F., BA, MA, PhD (McGill)

Henderson, A., BA (McGill), MES (York), PhD (Reutenberg)

Zaftis, R., BA (Ibogomps), MA (Oxford), PhD (Toronto)

I. What is Political Science?

Political Science has been described as “the science of politics, of who is governed, and how they are governed.” As such, it is a discipline that is concerned with the study of political institutions, processes, and outcomes. These are the issues that are most relevant to our daily lives, and they are the issues that drive the decisions of our elected officials. The study of political science is important because it helps us to understand the world around us, and it can help us to make informed decisions about the future.
and most courses emphasize government structure and policy making, including domestic public administration and foreign policy. Other courses deal with political behaviour such as public opinion or interest group activity. Courses in modern research methods, including quantitative analysis, are also offered.

The admission requirements for Political Science are listed under the Faculty of Arts and Social Sciences. There are no additional requirements for Political Science beyond those of the Faculty.

Students taking an Honours Degree in Political Science or majoring in Political Science are encouraged to seek advice from Professor Margaret Denike, the Undergraduate Advisor, in developing a program of studies. Professor Frank Harvey is the Coordinator of Graduate Studies.

For General Interest

Students who have not yet decided on a major, or are looking for an elective in Political Science, should take one of the Introductory courses. These may be taken over a single term or over the full year.

PLEASE NOTE: Students who complete the King’s Foundation Year program with a grade of ‘B’ or higher will not be required to complete an Introductory course in Political Science.

Students should take no more than the equivalent of one full credit in 1st year Political Science courses.

II. Degree Programs

Students concentrating in Political Science may take a 15 credit minor program, 20 credit major, or 20 credit honours program. The degree requirements are spelled out in University and Faculty regulations, and in departmental regulations outlined below. The specific courses to be taken in each individual program are chosen in consultation with the undergraduate advisor.

A student’s program may consist of a general selection of courses from the Department’s offerings or may emphasize one of the sub-fields of Political Science, as set out below.

Students are encouraged to develop distinctive programs tailored to their own particular interests and circumstances. They should, however, seek advice early in their program to ensure that they are consistent with University regulations.

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 122, of this calendar.

In addition to introductory courses, Political Science courses are divided into four subfields:

• Canadian Government and Politics
• Comparative Government and Politics
• Political Theory and Methodology
• International Politics and Foreign Policy

Full course descriptions appear in Section III.

Introductory

• POLI 1005.03: Ideas, Politics, People
• POLI 1005.03: Government and Democracy
• POLI 1100 X/Y:00: Political Worlds: An Introduction to Government and Politics
• POLI 1101 X/Y:00: Intro to Government and Politics

Canadian Government and Politics

• POLI 2210.03: Unity and Diversity: The Dynamics of Canadian Federalism
• POLI 2220.03: Political Power and Partisan Politics: The Structures of Canadian Parliamentary Government
• POLI 2220.03: Local Government
• POLI 2230.03: Constitutional Issues in Canadian Politics
• POLI 2248.03: Canadian Provincial Policies
• POLI 3220.03: International Relations
• POLI 3224.03: Canadian Political Parties
• POLI 3231.03: The Politics and Governance of Canadian Cities
• POLI 3233.03: Politics and the Economy of Canada
• POLI 3235.03 The Politics of Regionalization
• POLI 3241.03 Canadian Political Thought
• POLI 3242 03 00: Advanced Seminar in Canadian Politics
• POLI 4207.03: Canadian Politics: Themes and Theories
• POLI 4223.03: Pressure Politics in Canada: Opportunities and Obstacles
• POLI 4240.03: Policy Formulation in Canada
• POLI 4241.03: Introduction to Policy Analysis
• POLI 4242.03: Politics of Reason, Passion, and Biology
• POLI 4249.03: Canadian Public Administration
• POLI 4260.03: The Politics of Health Care

Comparative Government and Politics

• POLI 2300X/Y:06: Comparative Politics
• POLI 2310.03: Governance and Globalization
• POLI 3304.03: Comparative Federalism
• POLI 3311.03: Sport and Politics
• POLI 3315.03: African Politics
• POLI 3320.03: European Politics
• POLI 3321.03: Politics of the European Union
• POLI 3360.03: Politics in Latin America
• POLI 3378.03: U.S. Constitution, Government, and Politics
• POLI 3383.03: Politics of the Environment
• POLI 4302.03: Comparative Development Administration
• POLI 4303.03: Human Rights: Political issues
• POLI 4322.03: The EU as a Global Actor
• POLI 4340.03: Approaches to Development
• POLI 4555.03: Comparative Perspectives on the Development State
• POLI 4580.03: Politics of Climate Change

Political Theory and Methodology

• POLI 2410.03: Crisis and Consent: Foundations of Political Thought: 1651-1776
• POLI 2420.03: Revolution and Rationality: Foundations of Political Thought, 1789-1900
• POLI 2490.03: Democracy, Difference and Citizenship: A Survey of Political Philosophy
• POLI 3401.03: Contemporary Political Thought
• POLI 3403.03: Canadian Political Thought
• POLI 3420.03: Sex and the State
• POLI 3427.03: The Sexualization of Western Political Thought
• POLI 3431.03: Politics Through Film and Literature
• POLI 3434.03: The Ancient Origins of Political Thought: From Homer to Aristotle
• POLI 3440.03: The Politics of Fear
• POLI 3450.03: Storm and Stress: Romantics and the Backlash Against Enlightenment Political Thought
• POLI 3473.03: Democratic Theory
• POLI 3492.03: Political Inquiry I
• POLI 3493.03: Political Inquiry II
• POLI 4401.03: Human Rights: Philosophical Issues
• POLI 4479.03: Liberalism
• POLI 4481.03: Theories of Violence, Persuasion, Genocide

International Politics and Foreign Policy

• POLI 2520.03: World Politics
• POLI 2530.03: Foreign Policy in Theory and Practice
• POLI 2540.03: Canadian American Relations
• POLI 3503.03: Human Rights: Foundations
• POLI 3520.03: Building Democracy and Peace
• POLI 3521.03: Comparative Foreign Policy Simulation
• POLI 3531.03: The United Nations in World Politics
• POLI 3535.03: The New International Division of Labour
• POLI 3540.03: Foreign Policy in the Third World
• POLI 3544.03: Political Economy of Southern Africa
• POLI 3550.03: Japanese Foreign Policy
• POLI 3560.03: Human Development/Security at the Start of the Twenty-first Century
• POLI 3565.03: Contemporary Security Studies
• POLI 3567.03: International Organization
• POLI 3568.03: Canada and the World
• POLI 3574.03: American Foreign Policy
• POLI 3577.03: Civil-Military Relations in Contemporary Western Society
• POLI 3580.03: Diplomacy and Negotiation
• POLI 3589.03: Politics of the Sea
• POLI 3591.03: Pirates, Pirautes and Protectors of the Sea
• POLI 3596.03: Explaining Global Conflict and Violence
• POLI 4340.03: Approaches to Development

Political Science 283
Departmental Requirements

2000 level
- Three core courses, or equivalent in half-credit courses, which must include POLI 2410.03 and 2420.03.
- Two additional Political Science credits at or above the 2000 level.
- Two Political Science credits at advanced level (third and fourth year), not including those listed below.

3000 level
- POLI 3492.03 (or equivalent)
- POLI 3493.03
- One core course in Political Science (note that the prerequisite for these courses is an introductory course in Political Science);
- POLI 3492.03 as an equivalent quantitative methods course (approved by the Department) and POLI 3490.03.
- One full credit in Political Science beyond the 2000 level, and
- Two other full-credit Political Science courses beyond the 3000 level.

To gain admission into the Combined Honours program, students must have:

1. A B+ average in their last ten credits.
2. A B+ average in a group of four Political Science courses, or equivalent, which must include:
   - Two core courses, or equivalent (which include POLI 2410.03 and 2420.03).
   - POLI 3492.03 and 3493.03.
   - One full credit, or equivalent, at the 3000 level in Political Science.

Students should complete the Honours Application Form (available from the Registrar) and submit it to the Political Science Honours coordinator at the end of their third year.

In their fourth year, honours students are encouraged to take the senior 4000 level course in addition to POLI 4204.03 and 4205.03. Permission of the instructor is required.

This programme provides fourth year honours students with the opportunity to work with graduate students at an advanced level.

The honours essay is counted as one credit. It is prepared during the fourth year under the supervision of a faculty member. The essay demonstrates the student’s ability to develop a systematic argument with reference to pertinent literature and other such data or analytical materials as may be appropriate. The credit number for the honours essay is POLI 4600.06. Arrangements are made for honours students in the last year to meet their supervisor with some regularity to discuss and ultimately present the work represented in their essay. Honours students will also be expected to participate in the Honours Seminar, which will count toward the “21st” grade required by the University.

B. Combined Honours

PLEASE NOTE: Be sure to read the Faculty of Arts and Social Sciences requirements for the Combined Honours Program listed in the Degree Requirements section of this Calendar.

Several of the more common combined honours programs are: Political Science and Philosophy; Political Science and History; Political Science and Economics; Political Science and Sociology; Political Science and Computer Science and Political Science and International Development Studies. Students interested in taking any of these combined honours programs or in discussing other possible programs should consult initially with the Honours Supervisor.

To obtain a Combined Honours, with an emphasis upon Political Science, students must have:
- Two core courses in Political Science, which must include POLI 2410.03 and POLI 2420.03 (or equivalent).
- The prerequisite for these courses is an introductory course in Political Science.
- A methods course in one of the two fields (e.g., POLI 3492.03 (or equivalent) and 3493.03).
- At least two full credits at an advanced level in Political Science (in addition to 3492.03 and 3493.03), and
- POLI 4600.06.

To gain admission into the Combined Honours program, with an emphasis upon Political Science, students must have a B+ average in a group of three Political Science courses comprised of two core courses (including POLI 2410.03 and POLI 2420.03) and 3492.03 and 3493.03.

Students who take a combined Honours, with an emphasis on a subject OTHER than Political Science, must take a minimum of:
- One core course in Political Science (note that the prerequisite for core courses is an introductory course in Political Science);
- POLI 3492.03 as an equivalent quantitative methods course approved by the Department) and POLI 3490.03.
- One full credit in Political Science beyond the 2000 level, and
- Two other full-credit Political Science courses beyond the 3000 level.

To gain admission into the Combined Honours program, with an emphasis upon a subject OTHER than Political Science, students must have a B+ average in a group of two Political Science courses, including a core course.

C. BA (20 credit) Major in Political Science

The Major program offers the opportunity for students to design a more focused study within a specific subfield of Political Science. The Major program is a 20 credit course: students must have a minimum of six and a maximum of nine Political Science courses in total above the 1000 level; three of these courses must be beyond the 2000 level.
Departmental Requirements

1000 level
- One full credit (or two half credits) from the following: POLI 1010.03, 1020.03, 1025.03, 1030.03, 1050X/0Y, 1100X/0Y

2000 level
- Two full credits in different core course fields. The core course areas are as follows:
  - POLI 2210.03 and POLI 2220.03
  - POLI 2300.X/0Y
  - POLI 2410.03 and POLI 2420.03
  - POLI 2520.03 and POLI 2530.03

Students must complete a full credit in two of these areas, for a total of two full credits.

3000 level
- Three full credits. Note: one full credit must be either POLI 3492.03 (or equivalent) or POLI 3495.03.
- One additional full credit in Political Science above the 1000 level
- Other required courses
  - A writing course or King’s Foundation Year Program.

D. BA (20 credit) Double Major in Political Science

Departmental Requirements

1000 level
- One full credit (or two half credits) from the following: POLI 1010.03, 1020.03, 1025.03, 1030.03, 1050X/0Y, 1100X/0Y

2000 level
- Two full credits in different core course fields. The core course areas are as follows:
  - POLI 2210.03 and POLI 2220.03
  - POLI 2300.X/0Y
  - POLI 2410.03 and POLI 2420.03
  - POLI 2520.03 and POLI 2530.03

Students must complete a full credit in two of these areas, for a total of two full credits.

3000 level
- Two full credits. Note: one half credit must be either POLI 3492.03 (or equivalent) or POLI 3495.03.
- One additional full credit in Political Science above the 1000 level

Other required courses
- A writing course or King’s Foundation Year Program.

E. BA (15 credit) Minor in Political Science

See Minors in the College of Arts and Science section of this calendar (page 129).

F. Minors Program

Minor in Political Science
See Minors in the College of Arts and Science section of this calendar (page 129).

Summer School Courses
The Department normally offers several second year or third year courses in the summer sessions. For details, see the University summer school calendar.

III. Course Descriptions

The full title of each course number indicates year, or level, of course. Except for 1000 level courses, the second digit denotes the sub-field within which the courses is listed.

Not all courses are offered every year. For final listings check with the Department office or the current timetable.

POLI 1050.03: Ideas, Politics, and People.
This course is an introduction to major political concepts, ideas, and debates. It provides a foundation for all further courses in political science. By reference to current political issues, we explore the ideologies of nationalism, liberalism, socialism, conservatism, fascisms, feminisms, and other political ideas. A unit on political economy elucidates what these ideologies mean in practice. Another unit on political culture examines how these ideologies work out differently in individual nation-states. POLI 1050.03 follows sequentially.
FORMAT: Lecture
EXCLUSION: POLI 1100X/0Y, 1103X/0Y, 1105X/0Y, 1105X/0Y, 1025.03

POLI 1055.03: Governments and Democracy.
What do governments do? Are we entitled to accountable and effective government? How democratic is the government? In this course, students consider these and other questions by exploring the structure of government in Canada, and in a selected country.
Examples: Canada, the United States, the United Kingdom, France, Russia, China. It is suggested that the student consult the Department to establish which governments are the focus of study.
FORMAT: Lecture
EXCLUSION: POLI 1010.03, 1020.03, POLI 1103X/0Y, 1030.03, 1030.03, 1025.03

POLI 1100X/0Y: Political Worlds: An Introduction to Government and Politics.
This team-taught introductory course, you will be exposed to the diverse worlds of political life through the research and teaching interests of a diverse range of professors in the Political Science department. They will introduce you to a range of key issues and approaches that animate both their own research and contemporary politics in various parts of the world. Topics addressed will include: the nature and forms of democracy; the relationship between economic wealth and political power; the quest for human rights; the nature of diplomacy and international organization; the challenges of defining and promoting international security; the challenges of global inequality and development; forms of political participation; the politics of environmental sustainability; and the relationship between politics and sports.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture
EXCLUSION: POLI 1010.03, POLI 1010.03, POLI 1020.03, POLI 1025.03, POLI 1030.03, POLI 1030.03, POLI 1103X/0Y

POLI 1103X/0Y: Introduction to Government and Politics.
The approach and format in POLI 1103.06 is similar to that in POLI 1100.06 above. This course is also designed, however, to serve as the Department’s designated Writing Course.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Writing Requirement, lecture
EXCLUSION: POLI 1010.03, POLI 1011.03, POLI 1020.03, POLI 1025.03, POLI 1030.03, POLI 1030.03, POLI 1103X/0Y

POLI 2210.03: Unity and Diversity: The Dynamics of Canadian Federalism.
Along with parliamentary government and the Charter of Rights and Freedoms, federalism is one of the three constitutional pillars of governance in Canada. Federalism has been central to Canada’s political, economic, social and cultural development. The course examines federalism in the last few terms, and political power. The course explores how federalism shapes the practice of democracy in Canada. It examines how federalism either facilitates or hinders the recognition, accommodation and inclusion of a variety of regional and non-regional interests and identities. It also examines how federalism shapes the evolution and implementation of public policy. The course provides an overview of the historical structures and evolution of Canadian federalism as well as the relationship between these structures and Canadian society. It engages with contemporary debates about the performance of Canadian federal institutions and explores possible reforms. Issues covered in the course include, for instance, the role of Quebec nationalism in the federalism’s evolution, the relationship between the Charter of Rights and Freedoms and federalism, debates on the “imbalances” in the federalization, the place of emerging “minorities of government” (including Quebec) in the federal system, and the nature and limits of democracy in Canada.
FORMAT: Lecture
EXCLUSION: POLI 1103X/0Y, 1103X/0Y, 1103X/0Y, 1103X/0Y, 1103X/0Y

POLI 1010.03, 1015.03, 1020.03, 1025.03, 1030.03, 1035.03, 1050X/0Y, 1055X/0Y, 1100X/0Y
POLI 2420.03: Political Power and Partisan Politics: The Structures of Canadian Parliamentary Government

Canadian government is dominated by prime ministers and parties. Why this concentration of power at both the federal and provincial levels of government? Are Members of Parliament who are not in the Cabinet really “mediaries” as one recent PM characterized them? Are Cabinets themselves becoming too much like “focus groups”? Do elected partisan roles and public service advisors have more influence than the vast majority of elected representatives? Are political parties irrelevant as vehicles for citizen engagement? Are interest groups or social movements any more relevant? Do elections matter? Are the media merely the political instruments of the business elite? These are among the issues that are examined in this course in an attempt to understand the most critical factors that shape the structuring of power in contemporary Canadian government.

FORMAT: Lecture/discussion
PREREQUISITE: An introductory course in Political Science
EXCLUSION: POLI 2200X/Y/06

POLI 2300X/Y/06: Comparative Politics.

This course introduces students to the methodology and scope of comparative politics, including analysis of political institutions and behavior. General overviews and selected case studies are provided for liberal democracies, post-communist, newly industrialized, and least developed countries. Topics include theories of the state, political culture and socialization, electoral and party systems, interest groups, ethnic and regional cleavages, gender politics, policy outcomes and system performance, political participation and leadership and contemporary challenges and changes. Group presentations are used for student exploration of these themes.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture/discussion
PREREQUISITE: Introductory political science course or instructors’ permission

POLI 2350.03: Governance and Globalization.

This seminar course provides students with an opportunity for critical evaluation of the ongoing processes of processes of globalization and increased capital mobility as well as the role in numbers and influence of NGOs and new social movements. Hence, “new” forms of governance emerging out of decentralization and/or devolution of state authority and supra-national arrangements that are broadly captured within the concept of “global governance” will be explored along with traditional concepts of governance thatcentre on the accountability and environment of governmental policy-making. A range of issues will be examined – governance of economies and environments, energy, communications, international, health, conflict and complex emergencies – within the context of debates involving the “internationalization” of the state; the role of identities – e.g., nationalist, ethnic, gender, cosmopolitan; the growing relevance of communications, human rights, health, conflict and complex emergencies – within the context of changing dynamics related to the trans-nationalisation of production and economic production goes into exports, and of that well over 80% goes to the U.S. and E.U. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life. The U.S. outranks Canada on all the political, economic, social and cultural life.
POLI 3206.03: Constitutional Issues in Canadian Political History

These are political issues that possess an important constitutional dimension. They include judicial review and the role of the Supreme Court of Canada, constitutional amendment, the representation formula, the Charter of Rights and Freedoms, language rights and the Charter. FORMATT: Seminar
PREREQUISITE: POLI 2240.03 and 2220.03

POLI 3208.03: Canadian Provincial Policies.

An analysis of the dynamics and structures of provincial governments. Political parties, voting behaviour, legislatures, electoral systems, bureaucracies and policy formulation will be the core of this course. Attention is also paid to interprovincial social and intergovernmental relations. FORMATT: Seminar
PREREQUISITE: POLI 2210.03 and POLI 2220.03 or instructor’s permission

POLI 3220.03: Intergovernmental Relations.

This course will examine the territorial division of political and administrative power and the nature of relations between governments which result from such a division of power, including federal-provincial-municipal or “no-level” relations. Specific topics will include the role of the courts in constitutional interpretations, the instruments of “fiscal federalism” (including equalization payments, conditional grants, tax sharing arrangements and shared-cost programs), administrative relationships and the concept of “executive federalism.” Those themes will be pursued further by each student through the preparation of a research paper. This paper will deal with a policy area selected by the student (transportation, education, health, etc.) and will provide an opportunity for a more intensive examination of the impact of intergovernmental relations, on public policy and its history. For additional information about course requirements, please consult the instructor.
FORMATT: Lecture/discussion
PREREQUISITE: POLI 2210.03 and 2220.03 or instructor’s permission

POLI 3224.03: Canadian Political Parties.

The Canadian party system, viewed as an integral part of the entire political system, presents a number of interesting questions for exploration, such as lower voter turnout, electoral reform, the role of party leaders, and the manner in which parties contribute to Canadian democracy. The particular themes emphasized will vary from year to year. Approved with Canadian Studies.
FORMATT: Lecture/discussion
PREREQUISITE: POLI 2210.03 and 2220.03 or instructor’s permission

POLI 3233.03: Politics and the Economy in Canada.

The Canadian party system, viewed as an integral part of the entire political system, presents a number of interesting questions for exploration, such as lower voter turnout, electoral reform, the role of party leaders, and the manner in which parties contribute to Canadian democracy. The particular themes emphasized will vary from year to year. Approved with Canadian Studies.
FORMATT: Lecture/discussion
PREREQUISITE: POLI 2210.03 and 2220.03 or instructor’s permission

POLI 3235.03: The Politics of Regionalism.

This course surveys the interaction between politics and economics in Canada with emphasis on the question of regional development. It will canvass competing explanations for differences in economic development among Canada’s regions with special emphasis on Maritime economic problems, highlighting both the political sources of regional disparities and continuing efforts to rectify them. Dominant Western, Quebec and Ontario concerns will also be covered. Seminars for senior undergraduates will feature student presentations and research projects. Approved with Canadian Studies.
FORMATT: Seminar
PREREQUISITE: Open to senior undergraduates who have completed courses on Canadian politics, or permission of the instructor

POLI 3304.03: Comparative Federalism.

A seminar course which examines the theory and practice of federalism within a comparative framework. The actual federations discussed depend on student interest but usually includes both established federal nations and those moving in that direction.
FORMATT: Seminar
PREREQUISITE: POLI 2210.03, 2220.03 or POLI 2300.03 or POLI 2530.03 or instructor’s permission

POLI 3311.03: Sport and Politics.

This course examines the role of sport in domestic, transnational and international politics. It addresses the gap in much of mainstream political science concerning the pervasive influence of popular cultural trends and practices on political life. Some topics include: the role of sport in political socialization and the creation of national identity; the politics of the Olympic Games; sport and globalization; and sport and the politics of gender and wealth accumulation.
FORMATT: Seminar
PREREQUISITE: POLI 2300.06 or POLI 2530.03 or POLI 2535.03 or permission of instructor

POLI 3315.03: African Politics.

The diversity of states, politics, economy and society in post-colonial sub-Saharan Africa is examined in this seminar. Topics include theoretical approaches, economic systems, governance, inequality, political institutions, civil society, and intra-regional and transnational relations, and selected aspects of policy such as economic reform, political liberalization, women’s development, drought and ecology, AIDS and health.
FORMATT: Seminar
PREREQUISITE: POLI 2300.06 or equivalent or instructor’s permission

POLI 3320.03: European Politics.

This course looks at the political systems of selected countries in Europe, including Germany, Britain, Spain, Ireland and Switzerland. Topics include political parties and elections, industrial relations, social movements, political parties and elections, the role of local government, and the role of the European Union.
FORMATT: Lecture/discussion
PREREQUISITE: An introductory course in Political Science
EXCLUSION: POLI 3230.03 and POLI 3321.03
CO-REQUISITE: POLI 2220 or POLI 2210

POLI 3321.03: Politics of the European Union.

Europe is a complex polity. Almost all countries are members of the European Union (EU), which has common government institutions and policy-making processes. The course examines these important developments in the context of theories of integration. Among topics discussed are the common currency, agricultural politics, the common foreign and security policy, social policy issues, and the role of the European Union in the world. The course examines the role of the EU in the global economy, and expansion into central and Eastern Europe, is also discussed.
FORMATT: Seminar
PREREQUISITE: POLI 2300.06 or POLI 2305.06 and POLI 2520 and POLI 2530 or instructor’s permission
EXCLUSION: POLI 3305.03

POLI 3321.03: Politics of the European Union.

Europe is a complex polity. Almost all countries are members of the European Union (EU), which has common government institutions and policy-making processes. The course examines these important developments in the context of theories of integration. Among topics discussed are the common currency, agricultural politics, the common foreign and security policy, social policy issues, and the role of the European Union in the world. The role of the EU in the global economy, and expansion into central and Eastern Europe, is also discussed.
FORMATT: Seminar
PREREQUISITE: POLI 2300.06 or POLI 2305.06 and POLI 2520 and POLI 2530 or instructor’s permission
EXCLUSION: POLI 3305.03

POLI 3360.03: Politics in Latin America.

This seminar for advanced undergraduates examines one of the world’s most dynamic, diverse and rapidly changing regions. It surveys Latin America’s search for democracy from colonial to contemporary times. Students examine differing perspectives on the nature of democracy and explore Latin American political history and development, including the indigenous foundations, the colonial impositions, and more recent foreign intervention. The course examines political structures and values, the authoritarian presidency, military polarization, party
Undergraduate.book Page 288 Wednesday, March 12, 2014 12:03 PM

competition and electoral politics. The course also examines state-society
relations, the immense inequality, the changing role of women and the
remobilization of indigenous peoples and the impact of liberalization and
reactions to it from civil society. The course concludes by examining prospects for
consolidation of democracy and liberalization in the contemporary era of
globalization, the significance of the revitalization of the political left, and the
implications for scholarly interpretations.
FORMAT: Seminar
PREREQUISITE: POLI 2300.03 or POLI 2350.03 or POLI 2520.03 or INTD
2001.03 or INTD 2002.03 or SPAN 2109.03 or SPAN 2110.03 or SOSA
3168.03 or HIST 2384.03 or HIST 2385.03 or HIST 2386.03 or HIST 2387.03
or HIST 3390.03 or by permission of the instructor

POLI 3378.03: U.S. Constitution, Government, and
Politics.
The purpose of this seminar course is to gain a thorough and critical understanding
of the American political process. To this end, a series of topics are examined,
beginning with the framing of the constitution and concluding with questions
about political culture There is considerable emphasis on formal and informal
political institutions, especially political parties and elections.
NOTE: Credit can only be given for this course if X and Y are completed in
consecutive terms and partial credit cannot be given for a single term.
FORMAT: Seminar
PREREQUISITE: POLI 2210.03/2220.03 or POLI 2300X/Y.06 or instructor's
consent

POLI 3385.03: Politics of the Environment.
This course examines competing perspectives on the political, social, and
economic forces driving environmental degradation, as well as differing visions of
the types of political change required for ecological sustainability. Topics include:
competing perspectives on ideas of limits to growth and sustainable development;
the links between poverty, North-South inequality, and environmental
degradation; population growth; the promise and limits of technological solutions;
consumerism and ecological degradation; market-based environmentalism;
ecological modernization; and ecological critiques of capitalism.
FORMAT: Lecture/seminar
PREREQUISITE: Any Political Science course or permission of the instructor.
EXCLUSION: POLI 3585.03

POLI 3401.03: Contemporary Political Thought.

Faculty of Arts and Social Sciences

This course provides an overview of general themes and current debates within
contemporary western social and political thought. The course will profile the
work of selected authors (such as Michel Foucault, Noam Chomsky, Judith Butler,
Carole Pateman, and Charles Mills) on topics such as power, justice, community,
citizenship, property, entitlement, identity, and difference. We will also discuss the
impact of theoretical developments, such as post-colonialism, feminism,
postmodernism, and critical race studies on social, political, and legal reform.
FORMAT: Lecture/seminar
PREREQUISITE: POLI 2410 or POLI 2420 or PHIL 2210 or PHIL 2220, or
instructor's permission

POLI 3405.03: Canadian Political Thought.
This course addresses philosophical issues that play a major role in contemporary
Canadian politics. These include minority rights and multiculturalism;
nationalism, federalism, and self-determination; and citizenship and the politics of
identity. Approved with Canadian Studies.
FORMAT: Seminar
PREREQUISITE: POLI 2210.03/2220.03 or POLI 2410.03/2420.03
EXCLUSION: POLI 3205.03

POLI 3426.03: Sex and the State.
This course will consider the role of the state and other institutions in the social,
moral and legal production and regulation of sex and gender, particularly in
Western countries. It will begin with a brief historical overview of the role of
religious prescriptions in the social and legal regulation of sex, and in the
refinement of laws and policies that have been implicated in sex-and gender-based
discrimination. We will also address a range of contemporary topics such as the
decriminalization of homosexuality; hate crimes against sexual minorities; the
politics of relationship recognition; state response to HIV/AIDS; gender-related
refugee claims; and developments in the regulation of reproductive techonolgies.
FORMAT: Seminar
PREREQUISITE: POLI 1010 or 1015 or 1030 or 1035 or 1050 or 1055 or 1100 or
1103 or 2210 or 2230 or 2350 or 2410 or 2420 or 2430 or 2440 or 2450, or
permission from the instructor
CROSS-LISTING: GWST 3426.03

288 Political Science

POLI 3427.03: The Sexualization of Western Political
Thought.
Representations of women and constructs of femininity are a significant part of
mainstream western political thought. Drawing on contemporary critical analyses,
this course examines the roles of such representations in the work of leading
philosophers, with attention to understanding the relation between ideas of sexual
difference and their general systems of thought. We will also discuss the work of
contemporary feminist political theorists on a range of social and legal issues,
through a review of recent developments in theories of knowledge, embodiment,
equality, and rights.
FORMAT: Lecture/seminar
PREREQUISITE: POLI 1010.03 OR 1015.03 OR 1030.03 OR 1035.03 OR
1050.03 OR 1055.03 OR 1100.06 OR 1103.06 OR GWST 1010.03 OR
1015.03 OR 2000.03 OR 2053.03 OR 2066.03 OR 2200.06 OR 2217.03 OR
2300.03 OR 2301.03 OR 2310.03 OR 2320.03 OR 2500.03 OR 2800.06 OR
permission from the instructor.
CROSS-LISTING: GWST 3600.03

POLI 3431.03: Politics Through Film and Literature.
Film and literature often capture the depth and texture of politics in a way that the
social scientific method cannot. This course uses contemporary novels and films
to analyze the Enlightenment, Orientalism, the frontier, and the political economy
of community.
FORMAT: Seminar
PREREQUISITE: POLI 2410.03/2420.03 or instructor's permission

POLI 3434.03: The Ancient Origins of Political
Thought: From Homer to Aristotle
This course will study the very beginnings of political thought with Greek poets,
historians and educators, culminating in a careful investigation of the political
writings of Plato and Aristotle. We will investigate philosophical questions about
the origin of the state, the purpose of political community, the different kinds of
regimes or constitutions, the common good, individual freedoms, revolution, war,
wealth, poverty, and slavery.
FORMAT: Lectures/tutorials
CROSS-LISTING: CLAS 3434.03, PHIL 3434.03

POLI 3440.03: The Politics of Fear.
This course will consider the instrumentality of fear and terror in public policy,
and its role in fostering public opinion and managing social groups and
populations. Drawing on interdisciplinary and theoretical analyses of sex and race
discrimination, it will consider various ways in which sexual and racial politics are
implicated in the production and proliferation of "terror" in contemporary western
societies, in practices perpetrated or sanctioned by both state and non-state actors.
It will look at the recent discourses of terrorism and its representation in the
media: philosophical considerations of anti-immigrant fear-mongering: and
political analyses of the economy of "security" industries. It will also address the
role of both state and corporate interest in disaster relief, epidemics, and other
social crises.
FORMAT: Seminar/lecture
PREREQUISITE: POLI 1010 or POLI 1015 OR POLI 1030 OR POLI 1035 OR
POLI 1050 OR POLI 1055 OR POLI 1100 OR POLI 1103 AND the
completion of 70 credit hours, OR by permission of the instructor.

POLI 3449.03: Confronting Fascism.
This course focuses on German writers, artists, filmmakers, and intellectuals
whose work impacted and was impacted by the rise of fascism in the 20th century.
FORMAT: Lecture/tutorial
CROSS-LISTING: GERM 3450.03

POLI 3450.03: Storm and Stress: Romanticism and
the Backlash Against Enlightenment Political
Thought.
Romanticism is generally seen as a cultural movement, with its expression in
literature, music, painting, and philosophy. Yet its effect upon politics have been
profound. Nonetheless, there has been little extensive political analysis of the
Romantic movement and its effects. This course examines the development of
Romanticism, especially in its opposition to rationalism, positivism, and
classicism, from the late eighteenth century to the present. It examines the thesis
that the early 21st century is experiencing a significant period of neo-romanticism,
with its own set of reactions against rationalism and realism. What is the political
manifestation of this neoromanticism, and what are the implications for
contemporary politics?
FORMAT: Seminar/lecture
PREREQUISITE: POLI 2410.03, POLI 2420.03 or instructor's permission


POLI 3475.03: Democratic Theory.

Democracy is an essential component of legitimacy for all western states. Few would be inclined to accept their “underdeveloped” nature. But what are the essential characteristics of democracy? What are the limits to modern democratic theory? And what extent must modern democratic theory remain grounded in nineteenth-century western liberal thought? While this course has a predominantly theoretical orientation, it will include an examination of the historical development and economic production/reallocation; as well as an examination into how democratic theory can be developed in non-Western political contexts.

FORMAT: Lecture
PREREQUISITE: Any political or moral philosophy course or instructor's consent
CROSS-LISTED: POLI 3475.01 (political science honors students only)

POLI 3482.03: Political Inquiry I.

This course is an introduction to empirical research methods in political science and the social sciences more generally. It covers a range of issues that are relevant to both qualitative and quantitative empirical research, but its emphasis is on qualitative strategies (i.e., statistical analysis). Key issues include specification of hypotheses, measurement of variables, case selection, choosing and evaluating research designs, and drawing sound inferences from research findings. The “quantitative” component of the course de-emphasizes statistical theory and math, and focuses instead on the generation and interpretation of statistical results, using the SPSS statistical software. The course is built around a series of small homework assignments, lab sessions, a formal “data analysis paper,” and a midterm and final exam.

FORMAT: Seminar
PREREQUISITE: POLI 3404.05 (political science honors students only)

POLI 3483.03: Political Inquiry II.

This course introduces the theory and practice of qualitative research methods to study political phenomena. Themes addressed in the course include the theoretical and conceptual implications of choosing a particular methodology; the philosophical assumptions behind social science research; the various qualitative research methods available to political scientists, including interviewing, participant observation, case studies, comparative analysis, and the uses of documentary/primary sources; the evaluation of academic texts in political science, focusing on the logic of their argument, their methodologies, and the relationship between the evidence presented and their argument; and the ethical issues involved in selection and method.

FORMAT: Lecture/discussion
PREREQUISITE: Introductory Political Science course or instructor's permission
EXCLUSION: POLI 2494K.030
CO-REQUISITE: POLI 3404.05 (political science honors students only)


This course examines the formation of international human rights institutions, mechanisms, practices, and related jurisprudence. It provides an overview of the development of international humanitarian law and policy; the treaty system and mechanisms, practices, and related jurisprudence. It provides an overview of the development of international humanitarian law and policy; the treaty system and related jurisprudence. It provides an overview of the development of international humanitarian law and policy; the treaty system and related jurisprudence. It provides an overview of the development of international humanitarian law and policy; the treaty system and related jurisprudence.

FORMAT: Seminar
PREREQUISITE: POLI 1010 or 1015 or 1030 or 1050 or 1055 or 1100 or 1105 OR permission from the instructor
EXCLUSION: POLI 3505.01

POLI 3520.03: Building Democracy and Peace.

Many people have long argued that there is an intimate relationship between democracy and peace. Thus, they claim, democracies are much more inclined to cooperate, including guerrilla struggles and civil societies. It emphasizes the incidence and impact of structural adjustment programs and conditionality along with the emergence of “new” issues such as safety, democracy, ecology, gender, particularly in post-conflict societies. The role of these (overlapping) elements in post-conflict societies is the practice of demarcating space to be the key. These elements are civil society, the institutional environment and refugees. This third or fourth year-level course will examine key actors and elements and processes.

FORMAT: Lecture

POLI 3525.03: Comparative Foreign Policy Simulation.

This course is designed for advanced (i.e., 3rd-4th year) undergraduate and graduate students in Political Science. Once students become familiar with the basic concepts, theories and decision-making frameworks developed within the subfields of comparative foreign policy theory (i.e., they will be expected to apply what they have learned through participation in an interactive computer simulation involving other university teams throughout North and South America and central and western Europe. As they attempt to implement policy initiatives and work in teams to resolve international disputes, students will confront foreign policy issues in a context that provides an authenticity of experience. The objective is to enable students to create and test organizational structures, to understand the interdependence of international issues, to appreciate cultural differences and approaches to world problems, and to use computers for multinational communications.

FORMAT: Seminar
PREREQUISITE: POLI 2520/2520.01

POLI 3531.03: The United Nations in World Politics.

This seminar provides an overview of the global political economy in the current post-Colonial World. It treats the New International Divisions of Labour and Power. Among the several theoretical and political perspectives, from comparative foreign policy to feminism. Issues addressed include the Newly Industrializing Countries, the Middle Powers and the New World, new functionalism, popular participation, and alternative futures.

FORMAT: Seminar
PREREQUISITE: POLI 2520 or POLI 2530 or instructor's permission

POLI 3535.03: The New International Division of Labour.

This seminar provides an overview of the global political economy in the current post-Bolshevik World and Cold War period. It treats the New International Division of Labour and Power given the demise of both the Western and Cold War global regimes. In addition to selective case studies of both large and small states from Israel, India, Indonesia, and Nigeria to Botswana, Jamaica, Kuwait, and Singapore – it treats formal and informal external relations, from regional, intergovernmental institutions to domestic and governmental coalitions. It also examines new forms of regional conflict and cooperation, including guerrilla struggles and civil societies. It emphasizes the incidence and impact of structural adjustment programs and conditionality along with the emergence of “new” issues such as safety, democracy, ecology, gender,
refugees, and technology. A range of alternative approaches is identified and evaluated appropriate to the contemporary period of revisionism.

**POLI 3544.03: Political Economy of Southern Africa.**

An introduction to the comparative politics, economic structures and international relations of Southern Africa, which provides a study of regional political economy with both empirical and theoretical significance. As well as country comparisons, the course will look at the region as a political unit, exploring the opportunities for and constraints against formal regional cooperation on economy or security as well as informal processes that constitute the basis of "new" regionalism forces.

**FORMA T: Lecture and seminar**

**PREREQUISITE:** POLI 2520 or POLI 2530 or instructor's permission

**POLI 3560.03: Issues in Global Security and Development.**

This senior undergraduate graduate seminar is designed to present current definitions and debates about human development/human security at the turn of the century. These have both analytic and policy relevance for a wide range of actors in contemporary global politics: not just states/international organizations but also civil societies & private companies, think tanks and partnerships. It is offered in semester school to attract a diverse, interdisciplinary range of registrants and to coincide with the annual weekend workshop of the "new regionalism" network which meets an issue of relevance to global development each year, such as new regionalisms in August 2000 and globalizations in 2001.

**FORMA T: Seminar**

**PREREQUISITE:** Offered as a seminar course only. Consult instructor.

**CROSS-LISTING:** POLI 5560.03

**PREREQUISITE:** POLI 2210 or POLI 2220 or POLI 2520 or POLI 2530 or HIST 2235 or HIST 2661 or permission of instructor

**POLI 3565.03: Contemporary Security Studies.**

The course examines developments in the theory and practice of international security since the end of the Cold War. The first part covers the concept of security and the main theoretical approaches that inform the contemporary security debate. The second part analyses some of the key contemporary issues in world politics and their relation with international security. Topics include: Military Security, Economic Security, Environmental Security, Migration, Health and Security.

**FORMA T: Lecture and seminar**

**PREREQUISITE:** POLI 2250.03 or POLI 2530.03

**POLI 3567.03: International Organization.**

This course will investigate the process of international organization through analysis of the role of international organizations, institutions and regimes. For the purposes of the course, international organizations as well as local and institutional structures. The course will focus on the contemporary debate between realism and constructivist theoretical approaches to analyzing international organizations. This perspective will be employed to study the role of international organizations in areas such as international security and international economic policy. Topics to be covered include democracy and international organizations, culture and intergovernmental organizations, bargaining in international organizations, political and economic integration, NGOs and global civil society, and the future of global governance.

**FORMA T: Seminar**

**PREREQUISITE:** POLI 2250.03, POLI 2530.03 or instructor's permission

**POLI 3568.03: Canada and the World.**

This course examines post-World War II Canadian Foreign Policy in two parts: (1) an analytical, landmark policy-oriented analysis; and (2) an investigation of the general factors that help to "explain" the form and content of Canadian foreign policy, with particular reference to the institutions and processes through which policy decisions are made. Issues discussed are likely to include: the "invention" of preemption; the Militant government's involvement in the campaign to end apartheid in South Africa; the negotiations of the North American free trade; the politics of immigration and diasporas; and the place of the Arctic in Canada and international relations.

**FORMA T: Seminar**

**PREREQUISITE:** POLI 2210 or POLI 2220 or POLI 2530 or POLI 2530 or HIST 2212 or HIST 2259 or HIST 2861 or permission of instructor

**CROSS-LISTING:** CANA 2560.03

**POLI 3574.03: American Foreign Policy.**

This course is a general introduction to American foreign policy, with special attention to the theoretical and policy debates of the post-Cold War period. The course begins with relatively brief introductions to the history of US foreign policy and the institutions of foreign policy-making, but most of the readings and lectures are concerned with broad theoretical debates about what does, and/or what should, drive US foreign policy decisions. In later weeks, some of these theoretical lenses are applied to some specific recent foreign policy decisions, including the signing and "un-signing" of the Kyoto Accord, the extension of Permanent Normal Trade Relations status to China, and/or the war in Iraq.

**FORMA T: Lecture**

**EXCLUSION:** POLI 3571.06

**RESTRICTION:** Course in international relations, or foreign policy, or postwar Canadian history, or instructor's permission. Restricted to students in their third year or beyond. Course in international relations, or foreign policy, or postwar Canadian history, or instructor's permission. Restricted to students in their third year or beyond.

**POLI 3577.03: Civil-Military Relations in Contemporary Western Society.**

This course will examine the influential relationship between society, government, and the military in the post-Cold War era. The content includes: changing societal values and the domestic pressures they produce; and the implications of a constantly changing strategic environment. Different perspectives will be examined to assess the implications for civil-military relations of the post-Cold War changes: legal/constitutional (Castle doctrine), military/professional (operational requirements); and political (constituency and special interest demands).

**FORMA T: Lecture**

**PREREQUISITE:** POLI 2210/2220/2530.03 or instructor's permission

**POLI 3581.03: Diplomacy and Negotiation.**

This course looks at the way states decide which diplomatic strategies to pursue, and why these succeed or fail. Among the themes considered are the evolution of diplomacy as an international institution, national power and bargaining leverage, and the effects of domestic politics, psychology, and culture on international negotiation. Specific historical cases which may be reviewed in any given year include: the Peloponnesian War, the Munich Crisis, the Cuban Missile Crisis, the negotiation of the Canada-U.S. Free Trade Agreement, NAFTA, and the Kyoto Protocol. Students participate in a negotiation-simulation exercise and write a paper on a particular historical case.

**FORMA T: Seminar**

**PREREQUISITE:** Course in international politics (POLI 2520 or POLI 2530) or instructor's permission

**POLI 3599.03: Politics of the Sea I.**

The major issues involved in the Law of the Sea, the defining moments of different countries, the developing legal framework, and the political processes of the ongoing negotiations are covered.

**FORMA T: Seminar**

**PREREQUISITE:** Preference is given to graduate students, although mature undergraduate students from other relevant disciplines are welcome.

**POLI 3591.03: Pirates, Profitiers and Protectors of the Sea.**

While the world is focused on the terrorist threat on land, piracy and other criminal activities are spreading rapidly on the seas. Youths in small boats with simple weapons are embarrassing the most powerful navies in the world, hijacking merchant ships off the coast of Somalia and getting multi-million dollar ransom for their hostages. Meanwhile, illegal immigration and smuggling are also increasing dramatically. Natural disasters are also on the rise. Is Canada ready for these challenges? Are our maritime forces properly structured for the new security era or should we be changed radically? Lots of billions will be spent soon on new ships to either perpetuate the status quo or launch in a new direction. This course shows the full range of policy options and capability options available based on the logic behind the choices that need to be made. What would you recommend?

**FORMA T: Lecture**

**PREREQUISITE:** POLI 2210 or permission of instructor
POLI 3596.03: Explaining Global Conflict and Violence.
During a 13-week period in 1994 more than 600,000 people were killed in Rwanda, the result of armed violence that continued for over a year. The root causes of this conflict are complex and include various factors such as ethnic and religious differences, political instability, and economic problems. This course seeks to understand the nature of global conflict and violence by examining the factors that contribute to it, and by developing strategies for preventing and resolving conflicts. The course will cover topics such as the role of international organizations, the impact of economic sanctions, and the role of media in shaping public opinion. SIGNATURE REQUIRED.

POLI 4228.03: Pressure Politics in Canada: Opportunities and Obstacles.
The goal of this seminar is to explore the opportunities for and obstacles to advocacy politics in Canada. We analyze the strategies that pressure groups use to engage the most important loci of power in the Canadian political system: parliament, the public service and the courts. FORMAT: Seminar.

POLI 4232.03: Urban Governance in Canada.
The objective of this course is to provide students with the empirical, analytical, theoretical, and methodological tools to understand and explain the politics and policy activities of Canada’s urban and suburban municipalities within their socio-economic, institutional, and Constitutional contexts. A major concern is to evaluate how effectively and equitably city governments in Canada have responded to contemporary urban challenges. The course adopts a critical perspective on urban governance and engages with contemporary debates concerning municipal governance reform and the evolving nature of urban governance within Canadian federalism.

POLI 4234.03: Canadian Urban Politics in Comparative Perspective.
This course examines the politics and governance of Canadian cities from a comparative perspective. More specifically, the course uses a comparative method in three ways: 1) it asks what one can learn from comparing Canadian cities with other cities (international comparisons), 2) what cross-national comparisons of Canadian cities can teach us as well as compares Canadian cities implicitly with other cities by applying theories of urban politics and development that have been developed elsewhere to Canadian cities. The objective of this course is to provide advanced political science students with the theoretical, empirical and methodological tools to understand and explain the political development of Canadian cities.

POLI 4240.03: Policy Formulation in Canada.
This course provides a general introduction to the field of policy management, for graduate and honours undergraduate students. Using British 'best practice' ideas of professional policy making and Canadian statements of generic policy competencies, it seeks to improve the policy capacity of participants. It does this first by increasing their knowledge of public policy structures, processes, and outputs, and secondly, by giving them knowledge that they can use to advocate both inside and outside government. The first section of the course examines policy definitions and professional policy making approaches in the 21st century. Section three explores vertical, horizontal and external policy relationships, such as democratic politics of policy and as practical matters of management. Section four explores, and helps participants to gain proficiency in, the most recent processes of strategic policy design and implementation. This third and fourth week will increase the policy knowledge of all participants, and equip those who are in professional programs, including the various public services, to contribute more effectively policy processes in the future. SIGNATURE REQUIRED.

POLI 4241.03: Introduction to Policy Analysis.
This course examines four aspects of policy analysis: (1) the role of the analyst in modern government; (2) the analyst’s working environment; (3) techniques used in carrying out research and preparing position papers; (4) and the analyst’s responsibilities to government and to the public in determining what information should reach policymakers. Approved with Canadian Studies. SIGNATURE REQUIRED.
POLI 4242.03: Politics of Reason, Passion, and Biology.

Does reason or passion drive politicians and citizens to act as they do? Or does the dichotomy between the mind and the heart disguise more fundamental biological bases to political behavior? Do these approaches have any room for citizens to exercise their own judgment, or is autonomy lost altogether? Normative questions of justice, equality, and freedom are deeply embedded within each approach and must be confronted as they apply in practice. Although this material is inherently global and comparative, we principally want to investigate how it applies to Canada.

FORMAT: Seminar

POLI 4250.03: Canadian Public Administration.

This course examines the organization and management of the executive-branch structures of government for the formulation and management of public policy and public services. It considers the design and operation of the cabinet system and ministerial portfolios, relations between ministries and the public service; policy and budgetary processes; and, the structural designs of departments, agencies, crown corporations and regulatory commissions. A major focus will be the effects of the new public management on public administration, as governments in Canada, as elsewhere, seek to cope with budgetary constraints, increased demands for quality services and public participation, and greater effectiveness in securing results. Approved with Canadian Studies.

FORMAT: Lecture/ discussion
PREREQUISITE: POLI 2210.03 or 2220.03 or instructor's permission.
CROSS-LISTING: POLI 5250.03, POLI 5251.03

EXCLUSION: POLI 3250.03, POLI 3251.03

POLI 4260.03: The Politics of Health Care.

Because of its nature as both a public institution and a political icon, the Canadian healthcare system is an inherently political institution which cannot be understood without a clear comprehension of both its composition and its relationship to the broader political landscape in Canada. This course will provide a survey of the political and theoretical debates within the area of healthcare in Canada, including investigations of federation, funding, and governance.

FORMAT: Seminar

EXCLUSION: POLI 3260.03, POLI 3251.03

POLI 4302.03: Comparative Development Administration.

This course examines analytical, normative and political issues of public administration in developing countries. It considers the scope of development administration as a sub-field of public administration; public sector organization and management including public services, public enterprises, decentralization and rural development, financial systems, human resource management, aspects of state economic management (with the use of case-studies) and institutional aspects of aid administration (with CIDA and World Bank cases).

FORMAT: Seminar
PREREQUISITE: POLI 2300.06 or equivalent or instructor's permission.
CROSS-LISTING: POLI 5302.03, PLAD 4790.03
EXCLUSION: POLI 5302.03

POLI 4303.03: Human Rights: Political Issues.

This course will introduce students to the evolving place of human rights in public policy both domestically and internationally. We begin by examining the historic emergence of human rights as an issue in world politics, principally since the Second World War, and their conceptual foundations. We then focus on a number of specific topics and controversies concerning human rights in world politics, including: the sources of and struggle to end human rights-abusive regimes; the multilateral politics of human rights; human rights in national foreign policies; the rights of indigenous peoples; gender; humanitarian intervention; and the responsibility to protect, and the relationship between globalization and human rights, and the Global War on Terrorism and human rights. Finally we look at the role of human rights in domestic politics, focusing on the issues of women's rights and sexual orientation.

FORMAT: Seminar

PREREQUISITE: POLI 2205.03 or 2210.03 or POLI 2530.03 or POLI 3503.03 or equivalent, or instructor's consent.
CROSS-LISTING: POLI 5303.03
EXCLUSION: POLI 5303.03

POLI 4322.03: The EU as a Global Actor.

The aim is to enable the student to analyze and understand the international roles played by the EU in both economic and political areas. Why has the EU been better able to speak with one voice in economic areas than political areas? To what extent can the member-states control the foreign policies of the EU? The introductory part will include an overview of the EU governance systems in the areas of external economic relations (first pillar) and the Common Foreign and Security Policy (the second pillar) and analyses of the most achievements in both areas. Specific topics to be selected for analysis during the second part will include the EU and the WTO, the EU and the US, the EU and the East Asia, and the EU and developing countries. Finally, in the third part of the course students study recent efforts to develop a European Security and Defence Policy.

FORMAT: Seminar
PREREQUISITE: POLI 2520.03 or 2530.03 or appropriate History course.
CROSS-LISTING: POLI 5322.03
EXCLUSION: POLI 5322.03

POLI 4340.03: Approaches to Development.

A survey of theories of and policies about development and peripheral social formations. Particular emphasis on modernization, materialists, and alternative modes of analyses, and on orthodox and radical strategies of development. Topics treated include social contradictions (e.g. class, race and ethnicity), debt, social adjustment, human development, human security, and alternative modes of analyses, and on orthodox and radical strategies of development. Topics treated include social contradictions (e.g. class, race and ethnicity), debt, social adjustment, human development, human security, gender, technology, civil society, informal sectors, democratization and ecology.

FORMAT: Seminar, 3 hours
PREREQUISITE: By permission of instructor.
EXCLUSION: POLI 3400.03

POLI 4355.03: Comparative Perspectives on the Development State.

This course examines development in a broad regional comparative context to determine whether endogenous or exogenous conditions account for the success with which the North/Southwest Asian economies have been transformed vis-a-vis Latin America and Africa. The course compares the “development state” model across the developing world, by briefly focusing on three distinct cases - South Asia, Malaysia and Brazil as “speedily mobile” late industrializers.

FORMAT: Seminar
PREREQUISITE: POLI 2300.06 or POLI 2520.03 and POLI 2530.03, or equivalent, or instructor's permission.
EXCLUSION: POLI 5355.03

POLI 4380.03: Politics of Climate Change.

This course examines the interactions between politics and a changing climate. Core questions include: What has been the role of politics in efforts to respond to climate change? What does climate change mean for various political, social, and economic projects? Topics include: the role of science and economics in climate politics; the non-“climate capitalist”; non-capitalist alternatives that question growth and consumption and the carbon market; the “climate justice” question; Canada’s particular difficulties in addressing climate change; climate politics at the personal level; international climate negotiations; and climate as a security issue.

FORMAT: Primarily seminar with some lecture time
PREREQUISITE: POLI 3385 Politics of the Environment or permission of the instructor.
EXCLUSION: POLI 3380 Politics of Climate Change

POLI 4403.03: Human Rights: Philosophical Issues.

An examination of the historical and conceptual development of human rights, this course looks specifically at normative and political issues involved in the emergence of human rights from the 13th century to present. It covers the shift from natural law to natural rights, the emergence of states, rights to sovereignty governance, and the development of specific classes of rights (including freedom of conscience, property rights, women’s rights, cultural rights, animal rights, and socio-economic rights).

FORMAT: Seminar
PREREQUISITE: POLI 2400.03 or POLI 2420.03 or POLI 3505.03, or permission of instructor.
CROSS-LISTING: POLI 5400.03 and POLI 5403.03
EXCLUSION: POLI 3403.03

POLI 4427.03: Queer Theory.

This course provides an overview of the general questions and debates — and the philosophical, political and cultural contexts — of the interdisciplinary field that is now known as “Queer Theory.” It will profile a wide selection of foundational writings by leading scholars and contributors to GLBT thought and activism.

PREREQUISITE: POLI 2005.03 or equivalent, or instructor's permission.
Exercising topics such as difference, identity, discrimination, and equality, we will address its articulations critical race theory, feminist philosophy, and critical analyses of political economy. We will also address the significance of queer theory to LGBT equality activism, attending to the relationship between political thought and legislative practice in addressing institutionalized heteronormativity and the public expressions of homophobia, transphobia, sexism, and racism and their impact on social policy.

POLI 4440.03: The Politics of Affect: Theories of Emotion and Political Life.

This course draws on recent developments in the burgeoning field of affect studies to address the relation of both conscious and non-conscious emotive experience to public and political life. Drawing on the insights and scholarship from different disciplines, we will examine the social, political and cultural theories of affect, emotion, and aesthetics to explore their role in political decision-making and public responses. Topics will include the affective logic of public threat, the cultural politics of emotion such as fear and shame, moral reactions to moralistic rhetoric; visceral responses to social groups and/or cultural practices. We will also look at how sensibility, feeling, and affect have operated in social and political movements, including a consideration of emotion such as fear, disgust, and distress, and compassion in social conflict, and in the transformative approaches to retribution and reconciliation.

POLI 4479.03: Liberalism.

Liberalism takes a variety of forms and includes many topics including the rule of law, limited government, the free exchange of goods, entitlement to property, the self, and individual rights. Its philosophical and political assumptions provide the intellectual context within which its account of the individual, its vision of the community and its preferred allocation of resources will be assessed. SIGNATURE REQUIRED.

FORMAT: Seminar

PREREQUISITE: POLI 1010 or 1015 or 1035 or 1050 or 1055 or 1100 or 1105 AND the completion of 70 credit hours, OR by permission of the instructor.

POLI 4480.03: Theories of Violence, Persecution, Genocide.

This course will provide an overview of contemporary theoretical approaches to systemic violence, particularly against racial, ethnic, and sexuality minorities. Through a selection of historical and contemporary case studies, it will assess different accounts and explanatory frameworks for understanding the integration and exacerbation of persecution and genocide. Attending to the role of the state and policies in the history of violence, it will examine the discourses and practices that have both facilitated and justified the elimination of native peoples, enslavement of racial groups, the holocaust, and ethnic cleansing in the 20th century generations. We will also consider the recent attempts of the international community to prevent, deter, and end genocidal outbreaks, and the theoretical assumptions about human behaviour that underpin them.

FORMAT: Seminar

PREREQUISITE: Any second-year Political Science course, or instructor’s permission.

POLI 4521.03: Theories of International Relations I: Security Studies.

4521 and 4522 are independent courses that are conceptually closely related. This relationship is partially based on the more general division within IR between “Security Studies” and International Political Economy (IPE). POLI 4521 sets things up by reviewing the broadest theoretical debates within the field, with an emphasis on questions of power and order, and looks at theoretical work which focuses on political/military issues like deterrence, balancing, and the meaning of “national security.” POLI 4522 begins with theoretical debates over cooperation and institutions, and is empirically anchored in various aspects of IPE, including trade, finance, and development.

FORMAT: Seminar

PREREQUISITE: Instructor’s permission

POLI 4523.03: International Relations Theory 1: Order, Conflict and Change.

This advanced seminar course is concerned with the "structure-agent" problem as it applies to Canadian foreign policy. It also assesses the relationship between "Security Studies" and International Political Economy (IPE). POLI 4521 sets things up by reviewing the broadest theoretical debates within the field, with an emphasis on questions of power and order, and looks at theoretical work which focuses on political/military issues like deterrence, balancing, and the meaning of "national security." POLI 4522 begins with theoretical debates over cooperation and institutions, and is empirically anchored in various aspects of IPE, including trade, finance, and development.

FORMAT: Seminar

POLI 4524.03: Theories of International Relations 2: Cooperation, Institutions and Development.

This advanced seminar course is concerned with the "structure-agent" problem as it applies to Canadian foreign policy. In other words, what are the structures (both material and normative) that shape and constrain the pursuit of Canadian foreign policy; what room for maneuver and initiative is there; and who are the key actors, or the "agents" who shape and implement Canada's global role? The course discusses these questions through four sections: theoretical and analytical approaches to the study of Canadian foreign policy; the external context; the domestic; and key themes and issues in Canadian foreign policy.

FORMAT: Seminar

PREREQUISITE: Course in international relations, Canadian politics, or Canadian history, or instructor’s permission.

POLI 4525.03: Canadian Foreign Policy.

This advanced seminar course is concerned with the "structure-agent" problem as it applies to Canadian foreign policy. It also assesses the relationship between "Security Studies" and International Political Economy (IPE). POLI 4521 sets things up by reviewing the broadest theoretical debates within the field, with an emphasis on questions of power and order, and looks at theoretical work which focuses on political/military issues like deterrence, balancing, and the meaning of "national security." POLI 4522 begins with theoretical debates over cooperation and institutions, and is empirically anchored in various aspects of IPE, including trade, finance, and development.

FORMAT: Seminar

PREREQUISITE: Instructor’s permission

POLI 4575.03: Nuclear Weapons and Arms Control in World Politics.

The seminar examines the technological, doctrinal, and political aspects of the nuclear weapons "problem" and the "arms control" "solution." It also assesses the fate of contemporary nuclear arms control efforts.

FORMAT: Seminar

PREREQUISITE: Course in international relations or defence policy, or with instructor’s permission.

POLI 4575.03: Nuclear Weapons and Arms Control in World Politics.

The seminar examines the technological, doctrinal, and political aspects of the nuclear weapons "problem" and the "arms control" "solution." It also assesses the fate of contemporary nuclear arms control efforts.

FORMAT: Seminar

PREREQUISITE: Course in international relations or defence policy, or with instructor’s permission.

POLI 4575.03: Nuclear Weapons and Arms Control in World Politics.

The seminar examines the technological, doctrinal, and political aspects of the nuclear weapons "problem" and the "arms control" "solution." It also assesses the fate of contemporary nuclear arms control efforts.

FORMAT: Seminar

PREREQUISITE: Course in international relations or defence policy, or with instructor’s permission.

POLI 4575.03: Nuclear Weapons and Arms Control in World Politics.

The seminar examines the technological, doctrinal, and political aspects of the nuclear weapons "problem" and the "arms control" "solution." It also assesses the fate of contemporary nuclear arms control efforts.

FORMAT: Seminar

PREREQUISITE: Course in international relations or defence policy, or with instructor’s permission.
POLI 4581.03: International Diplomacy: Institutions and Practices.
This course considers the historical evolution of international diplomacy. Among the themes reviewed are the emergence of national states, sovereignty norms, human rights and norms governing military intervention, the growth of international law and institutions, and the prospects for global governance. The course features extensive student participation, an emphasis on writing, and a negotiation simulation.

PREREQUISITE: POLI 2520.03, POLI 2530.03 or other international relations course.

POLI 4587.03: International Political Economy.
This course is composed of two overlapping constituent themes. The first theme is that of competing explanations of international political economic behaviour - behaviour affected by that diffuse political authority characteristic of the international system, the second, that of examining the basic issues in international political economy - the fundamental questions as to why international trade, international finance, unequal economic development, international organization, and the multinational enterprise. The first theme functions to create the over- all framework of analysis by which competing approaches to international political economy can be evaluated. The second theme will integrate these approaches with issue areas within the fields of international trade, international finance, and what might be termed "international production" (within which fields issues such as economic development, the multinational enterprise, and the global "division of labor" constitute the major foci). The course sessions will roughly be constituted by 50 percent lecture and 50 percent organized student contributions for seminar discussion and debate.

PREREQUISITE: POLI 2520.03 or equivalent. Students should feel comfortable with economic theory as well, otherwise by instructor's permission.

POLI 4590.03: Politics of the Sea II.
This course will examine environmental, political and economic forces which affect contemporary ocean governance and management. Contemporary issues will be used to explore the geo-political ocean on a sectoral basis (transportation, fisheries and resources, military, etc.), as well as analyzing the evolution of national and international policies and institutions.

FORMAT: Lecture/seminar.
CROSS-LISTING: POLI 5595.03, MARA 5589.03.

EXCLUSION: POLI 3590.03.

RESTRICTION: to 4th year Political Science Honours students.

POLI 4600X/Y.06: Honours Essay.
Political Science undergraduates in the Honours program are required to attend the Honours seminar as scheduled. This seminar is designed as a research seminar for Honours students.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

RESTRICTION: Restricted to Political Science Honours students in their final year.

POLI 4636.03: Nationalism and Statecraft.
An examination of the sources, ingredients and consequences of contemporary nationalism, with particular reference to its implications for the conduct of international politics. In the early sessions of the course, pertinent literature from the pre World War II period will be evaluated for its relevance to our understanding of current circumstances, in which the apparent revival of nationalist impulses has coincided with intensifying manifestations of functional interdependence.

SIGNATURE REQUIRED.

FORMAT: Seminar.
CROSS-LISTING: POLI 5636.03.

EXCLUSION: POLI 3590.03.

RESTRICTION: Restricted to students in their fourth year.

POLI 4810.03: Special Topics in Political Science.
An examination of selected issues in Political Science. This course explores, for example, when a visiting scholar is on campus, a special topic that is not a regular offering of the department. It is taught as a lecture or seminar course, not as an independent studies course. Since the topics covered in these courses differ from year to year, students should seek further information from the Political Science Department before registering. The subject matter in this course will be explored in greater depth than a course offered under 3810.03/3820.03.

FORMAT: Seminar.
Popular Culture Studies

Contact Person: Dr. Jacqueline Warwick
Location: 6155 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Email: jacqueline.warwick@dal.ca

I. Minor in Popular Culture Studies
See Minors in the College of Arts and Science section of this calendar (page 128).

Religious Studies

NOTE: Courses in Religious Studies are administered by the Classics Department (page 152).
Location: 6155 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3468
Fax: (902) 494-2467
Email: claswww@dal.ca
Website: http://arts.dal.ca/

Dean
Summerville-Murray, R., ATCL Dip (Trinity College, London), BA, MA (Cantab), PhD (Toronto)

Chair
Hankey, W. J. (902-494-3468)

Undergraduate Advisor
Austin, C. (902-494-6922)

Professor Emeritus
Ravindra, R., BSc, MTech (IIT), MA (Dalhousie), MSc, PhD (Toronto), Adjunct Professor of Physics

Assistant Professor
Austin, Christopher, BA, MA (Concordia), PhD (McMaster)

Associate Professor
Treiger, Alexander, BA (Jerusalem), MPhil, PhD (Yale)

I. Introduction
Religion is a phenomenon virtually universal in human society and history. Understanding religion involves grasping simultaneously both the meaning of faith in the lives of participants, and the critical analysis of outside observers. Both the student wishing enhanced understanding of religion as an historical, social and human fact, and the student who wishes to wrestle with problems arising in academic reflection concerning the relation between the personal and the objective, can find material to engage them in the programs and courses described below.

II. Degree Programs
In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section (page 125) of this calendar.

A. BA (20 credit) Major in Religious Studies

Departmental Requirements
1. At least one full course [two half courses] (six credit hours) selected from RELS 1001.03, RELS 1002.03, or RELS 1200.06. This requirement may be relaxed at the discretion of the Department. The King’s Foundation Year Program satisfies it. Students must complete a minimum of six full courses [12 half courses] (36 credit hours) or a maximum of nine full courses [18 half courses] (54 credit hours) in Religious Studies beyond the 1000 level. They must include:

   2. At least two full courses [four half courses] (12 credit hours) selected from RELS 2001.03, 2003.03, 2011.03, 2012.03, 2013.03, 2025.03, 2026.03, 2027.03, 2052.03, 2203.03, 2220.03, 2281.03, 2282.03.

   3. RELS 3000.03 Seminar in Religious Studies. This requirement may be relaxed at the discretion of the Department.
3. RELS 3000.03 Seminar in Religious Studies. This requirement may be relaxed at the discretion of the Department. The King’s Foundation Year Program satisfies it.

4. At least two full courses (four half courses) (12 credit hours) selected from RELS 2001.03, RELS 2003.03, 2011.03, 2012.03, 2013.03, 2025.03, 2026.03, 2027.03, 2032.03, 2203.03, 2221.03, 2282.03.

5. Outside Religious Studies one full course (two half courses) will be required from the following list: ARRC 1020.06 (Arabic); CHIN 1030.06 (Mandarin); CLAS 1600.03 (Sanskrit I); CLAS 1700.06 (Latin); CLAS 1800.06 (Greek); CLAS 1900.06 (Classical Hebrew); CLAS 2600.03 (Sanskrit II). Students may substitute a more advanced course in one of these languages for this requirement.

6. Completion of the Religious Studies Honours Examination (RELS 4000.06) if the first subject is Religious Studies.

E. BSc (20 credit) Combined Honours, Second Subject in Religious Studies

Students must complete the Faculty requirements for the combined honours degree. Religious Studies can be the second subject only. At least five courses (10 half courses) (30 credit hours) and no more than seven full courses (14 half courses) (42 credit hours) must be in Religious Studies above the 1000 level. At least 11 full courses (66 credit hours), to a maximum of 14 (84 credit hours) are to be in both subjects.

The Religious Studies requirements are:

1. At least one full course (two half courses) (six credit hours) selected from RELS 1001.03, RELS 1002.03, or RELS 1200.06. This requirement may be relaxed at the discretion of the Department.

2. At least two full courses (four half courses) (12 credit hours) selected from RELS 2001.03, 2003.03, 2011.03, 2012.03, 2013.03, 2025.03, 2026.03, 2027.03, 2032.03, 2203.03, 2221.03, 2282.03.

3. RELS 3000.03 Seminar in Religious Studies. This requirement may be relaxed at the discretion of the Department.

4. At least one and a half full courses (three half courses) (nine credit hours) in RELS at the 3000-level or higher. Of these nine credit hours, six must be chosen from the following: RELS 3001.03, 3008.03, 3012.03, 3014.03, 3019.03, 3100.03, 3103.03, 3111.03, 3113.03, 3120.03, 3202.03, 3241.03, 3243.03, 3361.03, 3411.03, 3412.03, 3422.03, 3423.03, 3661.03, 3662.03, 3910.03, 4010.03, 4011.03, 4018.03, 4019.03, 4590.06.

5. Students must complete the Faculty requirements for the combined honours degree. Religious Studies can only be the second subject, with no fewer than five credits (30 credit hours) and no more than five credits (30 credit hours) in each subject. Religious Studies requires:

1. At least one course (two half courses) (five credit hours) selected from RELS 1000.03, RELS 1002.03, or RELS 1200.06. This requirement may be relaxed at the discretion of the Department. The King’s Foundation Year Program satisfies it.

2. At least two full courses (four half courses) (12 credit hours) selected from RELS 2001.03, 2003.03, 2011.03, 2012.03, 2013.03, 2025.03, 2026.03, 2027.03, 2032.03, 2203.03, 2221.03, 2282.03.

3. RELS 3000.03 Seminar in Religious Studies. This requirement may be relaxed at the discretion of the Department.

4. At least one and a half full courses (three half courses) (nine credit hours) in RELS at the 3000-level or higher. Of these nine credit hours, six must be chosen from the following: RELS 3001.03, 3008.03, 3012.03, 3014.03, 3019.03, 3100.03, 3103.03, 3111.03, 3113.03, 3120.03, 3202.03, 3241.03, 3243.03, 3361.03, 3411.03, 3412.03, 3422.03, 3423.03, 3661.03, 3662.03, 3910.03, 4010.03, 4011.03, 4018.03, 4019.03, 4590.06.

6. Outside Religious Studies one full course (two half courses) will be required from the following list: ARRC 1020.06 (Arabic); CHIN 1030.06 (Mandarin); CLAS 1600.03 (Sanskrit I); CLAS 1700.06 (Latin); CLAS 1800.06 (Greek); CLAS 1900.06 (Classical Hebrew); CLAS 2600.03 (Sanskrit II). Students may substitute a more advanced course in one of these languages for this requirement.

F. Minor in Abrahamic Religions

See Minors in the College of Arts and Science section of this calendar (page 178).

G. Minor in Middle East Studies

See Minors in the College of Arts and Science section of this calendar (page 178).

III. Course Descriptions

First year students are not admitted to courses beyond the 1000 level without the consent of the instructor. Courses at the 2000 level or above require permission in general, they are available only to students in their second year or above.

Prerequisites for courses at the 3000 and 4000 levels are listed with each course at the discretion of the instructor. Courses at the 2000 level do not have prerequisites; in particular, they are available only to students in their second year or above.

See Minors in the College of Arts and Science section of this calendar (page 178).

Note: Not all courses are offered every year. Please consult the current timetable for this year’s offerings.

RELS 0400Y/700: Religious Studies Honours Examination. Details available from the department.

FORMAT: Examination administered by Religious Studies (Dept. of Classics)

PREREQUISITE: Students must be declared as BA Combined Honours Religious Studies, first subject Religious Studies

RELS 1001.03: Religions of the East. This course serves as an introduction to the history, beliefs, and practices of Hinduism, Judaism, Sikhism, Buddhism, Daoism, Shinto, and Confucianism.

FORMAT: Lecturer

EXCLUSION: RELS 1000.06
RELS 1002.03: Judaism, Christianity, and Islam: The Abrahamic Religions.
This course serves as a comparative and thematic introduction to the history, beliefs, and practices of Judaism, Christianity, and Islam. FORMAT: Lecture EXCLUSION: RELS 1000.06 REL 1000.06: Gods, Heroes, and Monsters: Ancient Mythology
An introductory survey of the traditional religious narratives of ancient civilizations including Mesopotamia, Egypt, Israel, Greece, and Rome. Of special interest: the function of myth in shaping and expressing a culture’s understanding of the divine, the institutions of human community (religion, the family, government), and the natural world; the interrelationships of the myths of those civilizations; the reception of these traditions in the origins of Christian and Islamic culture. The traditional narratives and their broader cultural currents will be approached through study of primary sources including epic, tragic, and didactic poetry, hymnography, historiography, philosophy, the visual arts, and architecture. This course fulfills the first year writing requirement. NOTE: Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively. FORMAT: Writing Requirement / Lecture CROSST-LISTING: CLAS 1100/X/Y EXCLUSION: CLAS 2100S/Y/Y
RELS 1600.03: Introductory Sanskrit I.
This course provides students with all the basic tools required for the study of Sanskrit, with a particular emphasis on basic Sanskrit grammar. Students will learn the Devanagari script, several common nominal forms and the basics of the verbal system, as well as develop a competency in basic reading and recitation. FORMAT: Lecture/seminar
RELS 2001.03: Judaism.
An introduction to Jewish beliefs, practices, history, and writings from the Hellenistic period to the present. Topics to be covered include: the Torah, the Tanakh, the development of the Rabbinic tradition, Jewish philosophy and mystical traditions. FORMAT: Lecture/semear
RELS 2003.03: Islam.
An introduction to Muslim beliefs, practices, history and writings from the 7th century to the present. Topics to be covered include: the Teora, the Talmud, the development of the Islamic tradition, Jewish philosophy and mystical traditions. FORMAT: Lecture/semear
RELS 2011.03: Hinduism.
An introduction to Hindu beliefs, practices, history and writings from the 7th century to the present. Topics to be covered include: the Teora, the Tanakh, the development of the Hindu tradition, and the rise of political Islam in the twentieth century. FORMAT: Lecture/semear
RELS 2012.03: Chinese and Japanese Religions.
An introduction to the cultural, religious, and philosophical traditions of China and Japan. Topics to be covered include: Classical Confucianism, Neo-Confucianism, Philosophical and Religious Daoism-Shinto, Chinese and Japanese Buddhism. The course will also examine the interaction, competition, and overlap between these traditions. FORMAT: Lecture/semear
RELS 2012.03: Chinese and Japanese Religions.
An introduction to the cultural, religious, and philosophical traditions of China and Japan. Topics to be covered include: Classical Confucianism, Neo-Confucianism, Philosophical and Religious Daoism-Shinto, Chinese and Japanese Buddhism. The course will also examine the interaction, competition, and overlap between these traditions. FORMAT: Lecture/semear
RELS 2013.03: Buddhism.
This course introduces the student to the Buddhist religious tradition, beginning with its origins and early developments in India and followed by a treatment of key themes of later world. Buddhism such as meditation, devotion, monasticism, and ritual. The course then exposes students to both Buddhism’s early Indian doctrinal and institutional dimensions, and to aspects of Buddhism as practiced subsequently in China, Japan, and Tibet. FORMAT: Lecture/semear
RELS 2005.03: Nature, the Human, Community and the Divine in the Pre-Modern West.
What is nature? What is the proper relationship between nature and the human being, political community, and divinity? This course will investigate ancient Greek, Roman, Jewish, Christian and Islamic answers, to this question through the study of Tennuro, philosophy, art and architecture of the Pre-Modern West. FORMAT: Lecture/semear
RELS 2026.03: Paganism.
"Pagan" originated as a derogatory Christian designation for ignorant conservative matris who kept to the post-Christian religions. We will look at those religions in their origins, nature, and development in antiquity, their continuations in the Middle Ages and modernity, and their persistence and revival in the contemporary world. FORMAT: Lecture/discussion CROSST-LISTING: CLAS 2026.03
RELS 2027.03: Magic, Religion and Philosophy. This course provides students with the basic tools for approaching the Arab world from a cultural perspective. The main topics are: 1) the guide marks of Arabic history; 2) a civilization “of the Word”; the Arabic language, the Koran, the Tradition of the Prophet Muhammad, and the sciences related to the Islamic age (mathematics, science, medicine, philosophy); 3) the Arab legacy in sciences, philosophy, literature, architecture, calligraphy, decoration, etc. 4) multi-cultural Arab-Islamic and the ideal of “convivencia”; 5) present nostalgia for the past; 6) traditions, modernity and effects of “Globalization” in the contemporary Arab “high culture” and “pop culture” in literature, music, arts, cinema, life style, education system, media, etc. Some lecture sessions will be accompanied by audio-visual presentations including documentary films. The course does not require background in Arabic. FORMAT: Lecture/discussion CROSST-LISTING: ARBI 2100/1/3, HIST 2500/3
RELS 2203.03: Philosophy and God.
Does God exist? Can God be known? Have a nature? Does exist? Beginning by occupying the same ground as religion, philosophy has asked these questions. Starting with Pythagoras, Empedocles, Plato, Aristotle, Epicurus, and continuing with their pagan, Jewish, Christian, and Islamic followers, we shall learn to state the answers of ages and contexts with historical accuracy and to judge their persuasive power. FORMAT: Lecture/discussion CROSST-LISTING: ARBI 2100/1/3, HIST 2500/3
RELS 2205.03: Philosophy of Religion.
Monothestic religions (such as Judaism, Christianity, and Islam) assert the existence of a single God. This course addresses philosophical problems posed by traditional monotheism: 1) why care whether monotheism is true? 2) Why care whether belief in God is rational? 3) Does the rationality of belief in God depend on the evidence for and against God’s existence? What is the best evidence for and against? What bearing does God have on human morality? CROSST-LISTING: PHIL 2205/3 EXCLUSION: PHIL 2200S/Y/Y
RELS 2208.03: Science and Medicine in Islamic Societies, 700 - 1500.
Through a combination of primary and secondary source readings, this course explores some of the major trends and debates within science and medicine in Islam from the seventh century until the early modern period. A special emphasis is placed on situating these developments within the larger political, social and institutional structure of Islamic societies. FORMAT: Seminar CROSST-LISTING: HISTC 2208/3 EXCLUSION: HISTC 3610/3 and RELS 3610/3 for the 2010/11 academic year only RESTRICTION: Restricted to students in their second year and above
Religious Studies

RELS 2209.03: The Roman World from Constantine to Theodosius (312–395).
This course covers one of the most important periods of Roman history in which Christianity became the dominant religion in the empire and foreign peoples threatened the existence of the empire itself. The course is open to first-year students. There is no foreign language requirement. FORMATT: Seminar
CROSS-LISTING: HIST 2170.03, CLASS 2290.03
EXCLUSION: CLASS 2290.07, HIST 2045K/3.06

RELS 2220.03: Ancient Israel in Her Near Eastern Context.
Israel will become familiar with the broad outlines of ancient Israelite history with specific attention to Israel's relationship to its immediate neighbors and the major imperial powers from the 3rd millennium BCE to the first century CE. This will entail an initial survey of biblical texts in order to lay an adequate understanding of ancient Israel's self-conception, followed by a detailed survey of Israel's interaction with other nations, including early Mesopotamia, Egypt, Assyria, Babylon, Persia, the Seleucid empire, and Rome. FORMATT: Lecture and seminar presentations
CROSS-LISTING: CLASS 2220.03, HIST 2251.03

RELS 2281.03: Christian Beginnings: The Orthodox and Oriental Churches.
This course traces the development of Christianity from its origin as a Jewish sect to its status as the dominant religion within the Byzantine Empire. The Christian religion as patristically by the Eastern Roman Emperors identified itself with the persecuted Christian sect of the first three centuries through the cult of the martyrs, articulated in the increasing importance of relic, icon, and pilgrimage to holy places. The seven ecumenical councils (325–787) progressively defined the Orthodox faith and resulted in the rise of Orthodox churches, rejecting aspects of the definitions. Through our end-date of 843 (when the icon was finally accepted), themes will be treated by attention to historical events (including the rise of Islam), art, architecture, liturgy, and various genres of literature (including hagiography). FORMATT: Lecture
CROSS-LISTING: CLASS 2281.03
EXCLUSION: CLASS 3280K/3.06

RELS 2365.03: Plato and the Case of Socrates: Philosophy on Trial.
Socrates (469–399 BCE) never wrote a single word, but posed such threat to Athens that a jury put him to death for the allegedly ethical corruption and impurity of his thought. This course will explore the revolutionary life and thought of Socrates, and consider whether the jury's decision against him was justified. FORMATT: Lecture
CROSS-LISTING: CLASS 2365, PHIL 2365

RELS 2420.03: Witchcraft in Early Modern Europe.
The period of European history from 1500 to 1800 are the rise of modern science and philosophy. It was also a period in which thousands of witch trials and executions were carried out. This course will seek to understand how these seemingly contradictory developments could have occurred simultaneously. The course will examine changing perceptions of the witch and witchcraft in relation to the historical, intellectual, cultural, religious, and political contexts. Questions that will be considered include: How did the Renaissance interest in magic influence the Early Modern understanding of witchcraft? What impact did concerns about popular religion have on the witch trials? What constituted evidence that someone was a witch? What did Early Modern scientists think about witchcraft? The course will pay special attention to Early Modern notions of gender and sexuality and their influence on the witch hunts and witch trials. FORMATT: Lectures/discussions
CROSS-LISTING: GWST 2210.03, EMSIP 2210.03

RELS 2503.03: Medieval Islamic Civilization.
This course will introduce students to the Post-Arabic world at the time of Muhammad's prophecy in the 7th century, and how the Arabian Peninsula was impacted by the creation and emergence of Islamic society in Medina and Mecca. With the collapse of Iranian and Byzantine empires in the Holy Land and the collapse of the Sassanid Empire in Persia, the Arab-dominated society of Mecca and Medina had become an empire of unprecedented size and ethnic complexity. The course will examine the respective Unayzyad and Abbasid Dynasties, as well as the Ottoman, Safavid, and Mughal. The central theme of this course will be an examination of the Islamic surrounding traditions and cultures in the Mediterranean, the Indian Subcontinent, the Steppe, China, and the Near Eastern and Central Asian region. Another important theme will be the study of how various Islamic societies understood and resolved the age-old dynamic between tribal nominalism and hierarchical urbanism. FORMATT: Lecture
CROSS-LISTING: HIST 2503.03
EXCLUSION: first year students and HIST 2501.03

RELS 2600.03: Introductory Sanskrit II.
This course will continue the study of ancient Sanskrit grammar, and translation of simple Sanskrit texts. PREREQUISITE: RELS 2600.03 or CLASS 1600.03
CROSS-LISTING: CLASS 2600.03

RELS 3000.03: Topics in Religious Studies.
This course treats a range of theoretical and methodological issues in the study of religion and serves to introduce students to key problems in scholarship on both Western and Eastern traditions. A variety of themes will be explored such as the relationship between philosophy and religion, the functions of doctrine and ritual, the nature of holiness and the nature of scripture; beyond a basic understanding of these and other themes; however, the course will engage students with the various — often conflicting — ways in which these themes have been treated in Religious Studies scholarship. This course is a core requirement for all students majoring in Religious Studies. FORMATT: Seminar
RESTRICTION: Students must be in their third year of study, or beyond

RELS 3001.03: Islam and the Others.
During its history, Islam has encountered numerous “others”: Christians, Jews, Zoroastrians, Hindus, and most recently the “West.” Muslim countries have had non-Muslim minorities, and conversely there have been Muslim minorities in non-Muslim countries. This course deals with Islamic perceptions of, and relations with, these “others” throughout history. FORMATT: Lectures
CROSS-LISTING: CLAS 2600.03

RELS 3008.03: The Medieval Church.
This course does not attempt to provide a chronological survey of the development of the Western church, but is an advanced seminar dealing with topics which have no strict chronological limits. Subjects of study include monasticism, heresy, education and the universities, town and cathedral, liturgical change, and “popular” concepts of religion. Each year one or more topics are examined in detail, with the help of original documents in translation, and using recent periodical literature and/or monographs. Students prepare and present one or two well-researched papers, and class discussions are used to explore related materials and theories in greater depth. Some prior knowledge of medieval European history is essential. RECOMMENDED: HIST 1000.03
FORMATT: Lecture/discussion
PREREQUISITE: HIST 2001.03 or HIST 2102.03 or HIST 2210.03
CROSS-LISTING: HIST 3002.03
EXCLUSION: Former HIST 3021.03 and 3022.03 students

RELS 3009.03: Christianity in the Lands of Islam.
After the Islamic conquest of the Middle East in the seventh century, approximately half of the world’s Christians found themselves under Islamic rule. The course tells the story of these Christians, their religious practices, their relations with the Muslims from the seventh century until today. FORMATT: Lecture
PREREQUISITE: Students must be in their third year of study, or beyond

RELS 3012.03: Mystics of the Middle East.
The course is designed as an introduction to mystical dimensions of Islamic thought and practice in their historical development and in relation to Jewish and Christian mysticism in the Middle East. Topics to be covered include: the beginnings of the Sufi tradition in relation to other varieties of Middle Eastern mysticism, orthodoxy and heresy in early Sufism, stations and states on the Sufi path, Sufism and philosophy in interaction, Sufi orders, Sufi poetry as vehicle of mystical experience. PREREQUISITE: RELS 3002.03 or RELS 3003.03 or permission of the instructor.
RELS 3018.03: Meetings Between Hellenism and the East to Philo the Jew.
We consider the constitution of Hellenism in relation to Eastern cultures as the emergence of Homer and Herodotus, the emergence of philosophy and the polis. With Alexander and the Hellenistic empires we look at the results and limits of military conquest especially in what is now Afghanistan. This course concludes with the constitution of Jewish religion and culture and its meeting with Hellenism with Philo Judaeus in Alexandria. In order to integrate the presentation of text and art the lectures are all in PowerPoint.

FORMAT: Lecture and discussion
CROSS-LISTING: CLAS 3282.03
HIST 3075.03

RELS 3019.03: Meetings between Hellenism, Judaism, Christianity and Islam until the Renaissance.
We consider the constitution of Christianity in relation to Hellenism and Judaism during the first six centuries of the Christian era. After treating the constitution of Islam, we consider its meetings with Christianity and Judaism especially in Spain and Norman Sicily. We conclude with medieval Jewish, Christian and Islamic philosophical theologians. Integrating the presentation of text and art the lectures are all in PowerPoint.

FORMAT: Lecture and discussion
CROSS-LISTING: CLAS 3017.03, HIST 3017.03

RELS 3100.03: Readings in Western Religions.
This course will focus on a single body of literature from the Jewish, Christian, or Islamic religious traditions such as the Gospels, Midrashic collections, or Talmud. The course will examine the interpretation of the literature in its original context, in traditional commentaries, and in the modern academy.

FORMAT: Lecture and seminar
PREREQUISITE: A 2000 level course or permission of instructor
EXCLUSION: RELS 3002.03

RELS 3101.03: The Self and the World in Indian Story.
Through a close reading of narrative and other forms of story literature, this course explores the two themes, fundamental to all South Asian religions, of unconstraining and absorbing the world. Reading materials will draw from Hindu, Indian Buddhist, Jain and Sikh narrative literature, and will reflect a range of religious attitudes towards worldliness within the family and society, and the pursuit of personal liberation through asceticism, renunciation and monasticism.

PREREQUISITE: A 2000 level RELS course or permission of the instructor
EXCLUSION: RELS 3002.03

RELS 3111.03: Vishnu and Krishna the Dark Lord: Popular Hindu Religion.
This course focuses on the god Vishnu and his various manifestations, particularly Krishna, the “Dark Lord.” Through an examination of traditional Sanskrit sources and popular religious traditions across India, the course treats the theological, mythic and cultic expressions of one of Hinduism’s most beloved figures.

FORMAT: Lecture with tutorial meetings
PREREQUISITE: RELS 2111 or permission of instructor

RELS 3112.03: Buddhism in India and Tibet.
This course engages the student with the Mahayana and Vajrayana traditions of Buddhism as lived and practiced initially in India and subsequently in the Tibetan cultural region. Emphasis will be placed on the philosophical schools called Madhyamika and Yogacara, and particularly on the tantric ritual and meditation practices of Tibet Buddhism.

FORMAT: Lecture with tutorial meetings
PREREQUISITE: RELS 2111 or permission of instructor

RELS 3113.03: The Mahabharata: India’s Great Epic of Strife and Salvation.
Barring perhaps the Ramayana, the Mahabharata or “Great Epic of India” is the most widely known and studied narrative in all South Asian tradition, and is one of the most important literary works of human civilization. The Sanskrit Mahabharata is enormous, complex, endlessly fascinating, and has remained for 2000 years the principal venue for the Hindu tradition’s reflection on the dark and chaotic dimensions of war, violence, civil and divine law, human identity and freedom. This course will lead students into the colourful world of India’s great Sanskrit epic, provide them with the tools for mastering this narrative track and the scholarly issues arising from its study, and provide them a taste of the Sanskrit language in which the poem is written.

FORMAT: Lecture and tutorials
PREREQUISITE: RELS 2111, RELS 3101, RELS 3111 or permission of the instructor

RELS 3200.03: Science and Religion: Historical Perspectives.
Beginning with an overview of the history and methodology of the study of science and religion, encounters between science and religion are traced from the dawn of civilization to the end of the eighteenth century, with a special focus on the early modern period. From an examination of the biblical view of nature, ancient Babylonian astrology and divination and Plato’s Timaeus, this course moves through a treatment of the centrality of Galileo to Medieval science on to natural theology and the “Watchmaker.” The course concludes with the seventeenth and eighteenth centuries. Models of science, harmony and complementary offered to characterize relations between science and religion are explored through case studies such as Galileo’s controversy with the Church and instances where religious belief inspired scientific like Boyle and Newton. Claims that certain confessional traditions (notably Protestantism and its dissenting offshoots) facilitated the rise of modern science are also appraised. Science-religion relations are examined both from the standpoint of mainstream religion and with respect to religious heterodoxy, prophecy, alchemy, magic and witchcraft. This course employs examples from Islamic cultures in addition to the Judeo-Christian traditions. Special features include a focus on primary texts and guest lectures by scientists.

FORMAT: Lecture/discussion
CROSS-LISTING: CLAS 3017.03, HIST 3017.03

RELS 3201.03: Science and Religion: Contemporary Perspectives.
Beginning with an overview of the history and methodology of the study of science and religion, encounters between science and religion are traced from the dawn of civilization to the end of the eighteenth century, with a special focus on the early modern period. From an examination of the biblical view of nature, ancient Babylonian astrology and divination and Plato’s Timaeus, this course moves through a treatment of the centrality of Galileo to Medieval science on to natural theology and the “Watchmaker.” The course concludes with the seventeenth and eighteenth centuries. Models of science, harmony and complementary offered to characterize relations between science and religion are explored through case studies such as Galileo’s controversy with the Church and instances where religious belief inspired scientific like Boyle and Newton. Claims that certain confessional traditions (notably Protestantism and its dissenting offshoots) facilitated the rise of modern science are also appraised. Science-religion relations are examined both from the standpoint of mainstream religion and with respect to religious heterodoxy, prophecy, alchemy, magic and witchcraft. This course employs examples from Islamic cultures in addition to the Judeo-Christian traditions. Special features include a focus on primary texts and guest lectures by scientists.

FORMAT: Lecture/discussion
CROSS-LISTING: HISTC 3200.03, EMSP 3300.03, HIST 3075.03

RELS 3250.03: Atheism in Early Modern Europe.
Although atheism continues to be a source of controversy and debate, one of the most significant features of the modern world is the course to which religious belief has become accepted as a morally and intellectually defensible position. This course will seek to understand the rise of modern atheism by examining its origins in the Early Modern world.

FORMAT: Lecture and seminars
CROSS-LISTING: HISTC 3200.03, CTMP 3201.03, HIST 3075.03

RELS 3282.03: Christian Beginnings: Catholicism.
This course will consider the formation of Catholicism (Latin Christianity) up to the 12th century in relation to the Greek-Roman context and the barbarian invasions. Moving from North Africa to Western Europe; and using a combination of text, music and art, architecture, and archaeological evidence, it will examine the formation of doctrine and discipline in relation to scripture, heresies and Hellenism, the origins and development of monasticism, the papacy, church and state relations, and the construction of literacy. An theme will be the interplay between the divine and the human.

FORMAT: Lecture and discussion
CROSS-LISTING: CLAS 3282.03
EXCLUSION: CLAS 3282X/06
This course presents two opposed arguments for the union of divinity with the human and human's "incarnation" and looks at one instance of how they meet: Lambichus, On the Mysteries, Anselm, Why the God-man, Bonaventure, The Journey of the Mind into God. We shall look at how these arguments bridge the gulf between science and religion. These works will normally be read in their entirety: Aristotle, Conclusio of Philosophy; Diodorus, Mystical Theology; Anselm, Proslogion. The main interest is the use and transformation of the philosophy of Plato, Aristotle, the Stoics and the Neoplatonists in this development. FORMAT: Lecture and discussion CROSS-LISTING: CLAS 3410.03

RELS 3381.03: Medieval Philosophy from Augustine to Anselm.
A study of texts, primarily within the Latin tradition from Augustine to Anselm, but including selected writings of the Pseudo-Dionysius. These works will normally be read in their entirety: Boethius, Conclusio of Philosophy; Diodorus, Mystical Theology; Anselm, Proslogion. The main interest is the use and transformation of the philosophy of Plato, Aristotle, the Stoics and the Neoplatonists in this development. FORMAT: Lecture CROSS-LISTING: CLAS 3381.03, PHIL 2381

This course will examine the first nine books of Augustine's Confessions. These 'autobiographical' books contain Augustine's account of his intellectual progress, culminating in his encounter with Platonism in book 7, followed by an account of his conversion to Christianity and his life as a Christian in books 8 and 9. FORMAT: Seminar CROSS-LISTING: CLAS 3411.03 EXCLUSION: RELS 3410.03

This course will examine the last four books of Confessions. Book 10 marks the transition from autobiography to Augustine's account of his present psychological life, undertaken in order to know himself as he is known by God. Books 11-13 are an exegesis of the beginning of the book of Genesis. FORMAT: Seminar CROSS-LISTING: CLAS 3412.03 EXCLUSION: RELS 3410.03

RELS 3432.03: St. Augustine's On the Trinity Part 2.
A study of Books 6-15 of Augustine's On the Trinity, in which he attempts to understand what has been shown in the first 7 books (the orthodox teaching about God through Scripture and a consideration of the categories of substance, relation and act) through the distinction of 40 topics. FORMAT: Seminar CROSS-LISTING: CLAS 3432.03

RELS 3510X/Y.03: Sultans and Shahs: Polity and Religion in the Islamic Gunpowder Age (1500-1800).
Until the devastating Mongol invasions of the 13th century, the principal centers of Islamic power, culture, and thought had been based in Cairo and Baghdad. This course will examine the post-Mongol Islamic world, and how politics and religion were irrevocably changed with the annihilation of the Sunni 'Abbasid caliphate. Religion became, combined with the present vacuum left by Chingiz Khan and his descendents, allowed for the emergence of a number of unique Turkmen states were irrevocably changed with the annihilation of the Sunni 'Abbasid caliphate. This course will examine the post-Mongol Islamic world, and how politics and religion were irrevocably changed with the annihilation of the Sunni `Abbasid caliphate. This course will discuss the three most significant of these: the Ottoman Turks (found in Istanbul), the Safavid Persians (found in Isfahan), and the Moghal Indians (based in Delhi). Areas of focus will include: issues of political legitimacy, use of military 'slave' corps, orthodoxy and popular religious movements, tensions between normative and subordinate segments of society, innovations in cultural expression (poetry, art, architecture), scientific and philosophical development, and the penetration and impact of the Portuguese, English, Dutch, and French 'world economies' into Asia and the Indian Ocean. This course will also examine significant debates regarding the 'decline of the East', and introduce the historical implications of how the Islamic world is approached by contemporary scholarship. NOTE: Credit cannot be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMAT: Lecture/discussion PREREQUISITES: HIST 2501.03 or 2502.03 or 2503.03 CROSS-LISTING: HIST 3510.03

RELS 3610.03: Studies in Ancient and Medieval Science.
Topics vary each year. Some of the topics are: "Creation", "History of dissection", "Mesopotamian science", "Science and cultures in antiquity", "The enigma of praxis", "Pluralism", "Ancient Method", "Embryology", "Posture analysis", etc. For descriptions of the current year's study topics, please consult the History of Science and Technology Program. NOTE: Not more than two studies courses (one full credit) and no more than one of each course number, can be taken for credit towards the History of Science and Technology Program. FORMAT: Lecture/discussion CROSS-LISTING: HIST 3610.03

RELS 3661.03: Hellenistic Philosophy: Stoics and Epicureans.
A study of philosophy in the Hellenistic Age. We will investigate the development of Greek and Roman philosophy after Aristotle, focusing on Stoicism and Epicureanism. The course covers the logic, physics, and ethics of these philosophical schools, as well as their religious dimensions. FORMAT: Seminar PREREQUISITES: CLAS 2361.03 and 2362.03 or permission of instructor CROSS-LISTING: CLAS 3661.03

RELS 3662.03: Hellenistic Philosophy: From Scepticism to Neoplatonism.
A study of philosophy in the Hellenistic Age. We will investigate the development of Greek and Roman Philosophy, focusing on Pyrrhonian and Academic Scepticism, as well as Middle Platonic Philosophy. The course covers the logic, physics, and ethics of these philosophical schools, as well as their religious dimensions. PREREQUISITE: CLAS 3411.03 or permission of instructor CROSS-LISTING: CLAS 3662.03 EXCLUSION: RELS 4610.03, RELS 4620.03

RELS 3850.03: The End of the World: The Apocalypse in German Thought.
The war, death and destruction that define European history in the 20th century can only begin to explain the obsession with the apocalypse in contemporary German thought. In this seminar we will study the secular appropriation of apocalyptic imagery from the Judeo-Christian tradition. FORMAT: Lecture/discussion CROSS-LISTING: GERM 3850.03 RESTRICTION: Restricted to students in second year or above

RELS 3910.06: Neoplatonism: Plato and Neoplatonism.
The philosophy of Plotinus and later thinkers considered the source of Greek Philosophy; in particular the role of Plato and other philosophers in the formation of Neoplatonism is a principal interest. CROSS-LISTING: CLAS 3910.06

RELS 4010.03: Islamic Philosophy: al-Ghazali.
Abu Hamid al-Ghazzali (1058-1111) is one of the greatest Muslim thinkers of all time. This course is an introduction to his thought, focusing on al-Ghazali's "truce" approach to theology – esoteric theology for the masses and esoteric theology for the select few – and on his attitude to Islamic philosophy and Islamic mysticism (Sufism). FORMAT: Seminar CROSS-LISTING: CLAS 4010.03, CLAS 5817
RELS 4011.03: Jewish Philosophy: Maimonides.

Moses Maimonides (1135-1204) is one of the greatest Jewish thinkers of all time. This course is an introduction to his philosophical and legal writings, with special emphasis on his famous treatise The Guide of the Perplexed. Maimonides’ stance on such issues as God’s incorporeality, creation, and prophecy will be compared to that of other varieties of Judaism.

FORMAT: Seminar

PREQUISITE: Students must have completed 5 full credits of university study and RELS 2001.03 or RELS 3392.03 or CLAS 3392.03 or PHIL 2392.03, or permission of the instructor.

CROSS-LISTING: CLAS 4011.03

RELS 4018.03: Christian Theology in Islamic Lands: John of Damascus.

John of Damascus (d. 744) is one of the greatest Christian theologians of the Patristic age. Though he wrote in Greek, he was probably a Christian Arab (his Arabic name is Mansur ibn Sarjun), who lived under Muslim rule and was employed as a public official in the Umayyad administration in Damascus. The course will focus on his theological works (especially his summa of Christian theology, entitled On the Orthodox Faith, and his three treatises on defence of the icons), their Christian sources, and their Islamic content.

FORMAT: Seminar

PREQUISITE: At least one of RELS 1002.03, RELS 2003.03, RELS 2301.03, RELS 2323.03, RELS 3009.03, foundation year program, or permission of the instructor.

CROSS-LISTING: CLAS 4018.03


Reconciling Jewish Scripture and Plato, Philo culminates Second Temple Jewish thought and founds the Christian treatment of Scripture. He is the most influential Jewish theologian and presents the High Priest as priest of the cosmos so he is crucial both to understand our past and to carry us into the future.

CROSS-LISTING: CLAS 4019.03

Russian Studies

Location: 6175 University Avenue, Rooms 3010 - 3016

PD Box 15000
Halifax, NS B3H 4E2

Telephone: (902) 494-3473
Fax: (902) 494-7648
Email: rusn@dal.ca
Website: http://www.dal.ca/russian

Dean

Smither-Murray, R., ATCL Dip (Trinity College, London), BA, MA (Cambridge), PhD (Ottawa)

Chair of Department

Kostof, D.

Undergraduate Advisor

Barnstead, J.

Professor Emeritus

Petrie, N. G. O., BA (Williams), MA, PhD (UC Berkeley)

Professor

Living, Y., BA, MA, PhD (Hebrew University)

Associate Professors

Bamtrand, J. A., BA (Oakland), AM (Harvard)

Kostof, D., PhD (Toronto)

I. Introduction

The Russian Studies Department offers courses in Russian language, literature, culture and history. Since Russia plays a crucial role in today’s world and makes important contributions in a wide variety of scientific, technical, and humanitarian fields, knowledge of its linguistic and cultural backgrounds can prove advantageous in many areas of study. Recent radical shifts in the country have significantly widened opportunities for using Russian in business, law, science, and government.

In the language courses emphasis is placed on gaining a thorough grasp of Russian grammar combined with practical competence in speaking, listening, reading, and writing. Sections are small and intensive. Classroom work is supplemented by computerized audio-visual materials. Study of Russian literature begins with a general survey intended for first or second year students, followed by monograph, period, and genre courses. Literature courses are generally offered in both English and Russian in order to give as many students as possible from other disciplines the opportunity to become acquainted with this important part of Russian life.

Courses in Russian culture and civilization are intended to introduce students to art, architecture, music, religion, and other areas of Russian life which are necessary to understand the language and literature. Films, guest speakers, and evenings of Russian poetry are scheduled periodically. The Dalhousie Association of Russian Students organizes a variety of events throughout the year.

Major or honours students may, with the approval of the Russian Studies Department, take up to one semester (five half credits) of work at a university in Russia and receive credit at Dalhousie. Qualified students are urged to participate in the intensive Russian Program, founded by Dalhousie, which enables Canadian students to study for a semester at St. Petersburg State University.

II. Degree Programs

Courses in the Russian Studies Department are open to students either (1) as electives in any degree program, (2) as constituents of a major or honours degree in Russian, or (3) with courses in another discipline forming part of a combined honours degree or double major, or (4) as a minor.
All Bachelor degree programs are governed by the general Requirements for Degrees set out in the University Calendar, in addition to the departmental requirements stated below. See “Degree Requirements” section, page 125 of this calendar for complete details.

## A. BA Honours in Russian Studies

### Departmental requirements

#### 1000 level
- RUSN 1000X/Y .06
- RUSN 1020.03
- RUSN 1070.03

#### 2000 level
- RUSN 2002.03 (or 2003X/Y.06)
- RUSN 2051.03
- RUSN 2052.03
- Five other credits at or above the 2000 level and not including those listed below.

#### 3000 level
- RUSN 3002.03 and RUSN 3003.03
- One other credit at the 3000 level or higher

#### 4000 level
- RUSN 4000X/Y.06

### Other required courses
- One full credit in Russian History (normally RUSN 2022.03 and 2023.03). This requirement is included in the number of credit hours noted above.
- Honours Thesis

## B. BA Combined Honours in Russian Studies

### Departmental requirements

#### Russian Studies as first subject:

#### 1000 level
- RUSN 1000X/Y .06
- RUSN 1020.03
- RUSN 1070.03

#### 2000 level
- RUSN 2002.03 and 2003.03 (or 2003X/Y.06)
- RUSN 2051.03 or RUSN 2052.03
- Three and one half other credits at or above the 2000 level and not including those listed below.

#### 3000 level
- RUSN 3002.03 and RUSN 3003.03
- One other credit at the 3000 level or higher

#### 4000 level
- RUSN 4000X/Y.06

### Other required courses
- One half credit in Russian History (normally RUSN 2022.03 or 2023.03). This requirement is included in the number of credit hours noted above.
- Honours Thesis

#### Russian Studies as second subject:
- A minimum of five credits with at least two of those credits being language courses at or above the 2000 level or above (normally 2002.03/2003.03/3002.03/3003.03/4000X/Y.06).
- At least two of the five credits must be at the 3000 level or above.

## C. BA (20 credit) Major in Russian Studies

### Departmental requirements

#### 1000 level
- RUSN 1000X/Y.06
- RUSN 1020.03
- RUSN 1070.03

#### 2000 level
- RUSN 2002.03 and 2003.03 (or 2003X/Y.06)
- RUSN 2051.03 and 2052.03
- Two other credits at or above the 2000 level not including those listed below.

#### 3000 level
- RUSN 3002.03 and 3003.03
- Two other credits at or above the 3000 level

#### 4000 level
- RUSN 4000X/Y.06

### Other required courses
- One full credit in Russian History (normally RUSN 2022.03 and 2023.03).

## D. BA (20 credit) Double Major in Russian Studies

### Russian Studies as first major:

#### 1000 level
- RUSN 1000X/Y.06
- RUSN 1020.03
- RUSN 1070.03

#### 2000 level
- RUSN 2002.03 and RUSN 2003.03 (or 2003X/Y.06)
- RUSN 2051.03 or RUSN 2052.03
- One and a half other credits at or above the 2000 level not including those listed below.

#### 3000 level
- RUSN 3002.03
- RUSN 3003.03
- One other credit at or above the 3000 level

#### 4000 level
- RUSN 4000X/Y.06

### Other required courses
- One half credit in Russian History (normally RUSN 2022.03 and 2023.03).

### Russian Studies as second major:
- A minimum of five credits with at least two of those credits being language courses at the 2000 level or above (normally 2002.03/2003.03/3002.03/3003.03 or 4000X/Y.06).
- At least two of the five credits must be at the 3000 level or above.
**Russian Studies 303**

- RUSN 1000.06: Russian Language Today.
- two additional A-term courses in Russian history and Russian literature, language.

3. Courses at St. Petersburg State University

- **RUSN 1000X/Y.06: Elementary Russian.** For students who have little or no previous knowledge of the Russian language. Equal emphasis is placed on developing oral, listening, and reading skills with a sound grammatical basis. May be offered in a traditional classroom setting or online. EXCLUSION: RUSN 1003.03
- **RUSN 1002.03: Elementary Russian I.** For students who have little or no previous knowledge of the Russian language. Equal emphasis is placed on developing oral, listening, and reading skills with a sound grammatical basis. May be offered in a traditional classroom setting or online. PREREQUISITE: C+ in Russian 1000X/Y.06 or permission of instructor.
- **RUSN 1003.03: Elementary Russian II.** For students who have little or no previous knowledge of the Russian language. Equal emphasis is placed on developing oral, listening, and reading skills with a sound grammatical basis. May be offered in a traditional classroom setting or online.
- **RUSN 1020.03: Russian Culture and Civilization.** Conducted in English. The course traces developments in the Russian arts: painting, sculpture, theatre, music. FORMAT: Instruction, discussion, film screenings.
- **RUSN 1036.03: Russian Film I.** An overview of the history of Russian cinema from the Silent Era to “Thaw” (19000-1960s). Its goal is to develop students’ knowledge of cinema in its historical and cultural context through critical watching, reading, thinking, and writing. The course will concentrate on the development of main genres and styles in Russian and official Soviet cinema, major directors and styles. Full versions of films will be screened each Monday night. later in the week they will be followed by a lecture, discussion, and viewing additional short clips.
- **RUSN 2001.06: Intensive Second Year Russian.** The material covered in RUSN 2002 and RUSN 2003 presented in a single semester. FORMAT: Instructor-directed 8 hours
- **RUSN 2002.03: Intermediate Russian I.** A continuation of RUSN 1000X/Y.06. Oral and reading skills and a further knowledge of grammar are developed through study and discussion of Russian texts. FORMAT: Instructor-directed 4 hours
- **RUSN 2003.03: Intermediate Russian II.** A continuation of RUSN 2002.03. FORMAT: Instructor-directed 4 hours
- **RUSN 2021J/Y.06: Imperial and Soviet Russia.** See course descriptions for HIST 2020X/Y.06 in the History section of this calendar.
- **RUSN 2022.03: Imperial Russia.** Chronologically covers the imperial period of Russian history, from Peter the Great to the Revolution of 1917. FORMAT: Lecture/discussion. EXCLUSION: May not be taken by students who have completed HIST 2020X-Y.06, RUSN 2021X/Y.06
- **RUSN 2023.03: Soviet Russia.** Equivalent to the second half of HIST 2020X/Y.06. Chronologically covers the Soviet period of Russian history, from 1917 to Gorbachev. FORMAT: Lecture/discussion. EXCLUSION: May not be taken by students who have completed HIST 2020.06 or RUSN 2021X/Y.06
- **RUSN 2029.03: Conversation.** Development of conversation skills and vocabulary building. PREREQUISITE: Student must be enrolled in the 2nd year grammar course or must have permission of instructor.
- **RUSN 2034.03: History of Russian Natural Science.** Conducted in English. An overview of the history of Russian natural science from the foundation of the Russian Academy of Sciences during the reign of Peter the Great to the empires.
- **RUSN 2046.03: East European Cinema: War, Love, and Revolution.** This course brings post-Berlin Wall East European film into the fray of current debates on cultural identity, transnational cinema, and postcolonialism. Despite the state control, the filmmakers of communist Europe were often more bold, honest and provocative than their profit-driven Hollywood counterparts. By drawing on political, cultural, and philosophical discourses, the course will offer pointed analyses of some of the most significant East European films that touch upon issues of ethnicity, gender, and overcoming censorship.
- **RUSN 2045X/Y.06: How iRead the Eye-Books: Film Adaptations of World Literature.** In this course we will be reading and watching the world adaptations of international history classics and popular contemporary works. From analyzing the art of comic strips and Supermen sagas to e-books designed for iPads and Android mobile devices, during the semester students will learn to appreciate both the text and its visual renderings using theoretical frameworks of adaptation and textual fidelity, as well as have an opportunity to practice their skills in the art of film-making and constructing an ebook.

**CROSS-LISTING:** THEA 2336.03

**RUSN 2029.03: Conversation.** Development of conversation skills and vocabulary building. PREREQUISITE: Student must be enrolled in the 2nd year grammar course or must have permission of instructor.

**RUSN 2045X/Y.06: How iRead the Eye-Books: Film Adaptations of World Literature.** In this course we will be reading and watching the world adaptations of international history classics and popular contemporary works. From analyzing the art of comic strips and Supermen sagas to e-books designed for iPads and Android mobile devices, during the semester students will learn to appreciate both the text and its visual renderings using theoretical frameworks of adaptation and textual fidelity, as well as have an opportunity to practice their skills in the art of film-making and constructing an ebook.

**Form of Instruction:** Lecture/discussion.

**FORMAT:** Lecture/discussion.

**RUSN 3090.03: Russian Society Today.** The study of sociocultural and economic aspects of Russian society. Its goal is to develop students’ knowledge of cinema in its historical and cultural context through critical watching, reading, thinking, and writing. The course will concentrate on the development of main genres and styles in Russian and official Soviet cinema, major directors and styles. Full versions of films will be screened each Monday night. later in the week they will be followed by a lecture, discussion, and viewing additional short clips.

**CROSS-LISTING:** THEA 2336.03

**RUSN 3035.03: Literature - Reading and Analysis.** An overview of the history of Russian literature from the Age of Peter the Great to modern times.

**CROSS-LISTING:** THEA 2337

**RUSN 3034.03: History of Russian Natural Science.** Conducted in English. An overview of the history of Russian natural science from the foundation of the Russian Academy of Sciences during the reign of Peter the Great to the empires.

**CROSS-LISTING:** THEA 2336.03

**RUSN 3032.03: Translation;**

**RUSN 3031.03: Conversation;**

**RUSN 3012.03: Translation;**

**RUSN 3011.03: Grammar I;**

**RUSN 3010.06: Grammar II;**

3. Courses at St. Petersburg State University

- **RUSN 2002.03: Elementary Russian I.** For students who have little or no previous knowledge of the Russian language. Equal emphasis is placed on developing oral, listening, and reading skills with a sound grammatical basis. May be offered in a traditional classroom setting or online. EXCLUSION: RUSN 2003.03
- **RUSN 2003.03: Elementary Russian II.** For students who have little or no previous knowledge of the Russian language. Equal emphasis is placed on developing oral, listening, and reading skills with a sound grammatical basis. May be offered in a traditional classroom setting or online.
- **RUSN 2010.03: Russian Culture and Civilization under the Tsars.** Conducted in English. The course traces developments in the Russian arts: painting, sculpture, theatre, music. FORMAT: Lecture, discussion, film screenings.
- **RUSN 2031.03: Modern Russian Culture and Civilization.** Conducted in English. The cultural history of 20th century Russia. FORMAT: Lecture, discussion, film screenings.
- **RUSN 2046.03: East European Cinema: War, Love, and Revolution.** This course brings post-Berlin Wall East European film into the fray of current debates on cultural identity, transnational cinema, and postcolonialism. Despite the state control, the filmmakers of communist Europe were often more bold, honest and provocative than their profit-driven Hollywood counterparts. By drawing on political, cultural, and philosophical discourses, the course will offer pointed analyses of some of the most significant East European films that touch upon issues of ethnicity, gender, and overcoming censorship.
- **RUSN 2045X/Y.06: How iRead the Eye-Books: Film Adaptations of World Literature.** In this course we will be reading and watching the world adaptations of international history classics and popular contemporary works. From analyzing the art of comic strips and Supermen sagas to e-books designed for iPads and Android mobile devices, during the semester students will learn to appreciate both the text and its visual renderings using theoretical frameworks of adaptation and textual fidelity, as well as have an opportunity to practice their skills in the art of film-making and constructing an ebook.

**FORMAT:** Lecture, discussion, film screenings.

**RUSN 2046.03: East European Cinema: War, Love, and Revolution.** This course brings post-Berlin Wall East European film into the fray of current debates on cultural identity, transnational cinema, and postcolonialism. Despite the state control, the filmmakers of communist Europe were often more bold, honest and provocative than their profit-driven Hollywood counterparts. By drawing on political, cultural, and philosophical discourses, the course will offer pointed analyses of some of the most significant East European films that touch upon issues of ethnicity, gender, and overcoming censorship.
RUSN 2051.03: Survey of Russian Literature. Conducted in English. An overview of Russian literature for majors. Required for majors and honours candidates. An overview of Russian literature from its beginnings through the 19th century. FORMAT: Lecture/discussion 3 hours EXCLUSION: RUSN 2050.06

RUSN 2052.03: Survey of Russian Literature. Conducted in English with sections in Russian for majors. Required for majors and honours candidates. An overview of Russian literature from Chukovsky to the present. FORMAT: Writing Requirement (when taken in combination with RUSN 2051.03), lecture and discussion 3 hours EXCLUSION: RUSN 2050.06

RUSN 2061.03: Russian Modernism. Conducted in English. A study of trends in literature and the arts at the turn of the century. Known as “The Silver Age”, this is one of the most innovative and dynamic periods in Russian culture. FORMAT: Lecture/discussion EXCLUSION: RUSN 2480.03

RUSN 2062.03: Literature of Revolution - The 1920s in Russian Literature. Conducted in English. A study of experiment and submission during one of the most exciting, diverse, and frustrating periods in Russian literature. “Socialist realism” was not yet official doctrine; innovation in literature was tolerated. Writers openly pondered the role of the individual and culture in the new collective society. FORMAT: Lecture/discussion EXCLUSION: RUSN 2280.03

RUSN 2070.03: Russian Literature and Culture since Stalin’s Death. Conducted in English. The literary and cultural history of Russia after Stalin’s death in 1953. Among the major issues considered are the significance of Stalin’s death, the “thaw” and de-Stalinization, unarmed and literature since glasnost. FORMAT: Lecture/discussion

RUSN 2081.03: Contemporary Russian Culture - The Seven Deadly Sins. Conducted in English. The fall of the Soviet Union has allowed a deluge of once ’official’ excesses, all of which define Russia’s accelerated processes of modernization. This course investigates such vices in the following order: pride, covetousness, lust, anger, gluttony, envy and sloth. FORMAT: Lecture/discussion

RUSN 2151.03: Introduction to Russian Folklore. Conducted in English. A broad survey of traditional Russian popular beliefs and practices: proverbs, riddles, and counting rhymes; the rites and rituals of the Russian agricultural year; fairy tales and epic poems (byline); reconstruction of the Slavic pantheon and its evolution. FORMAT: Lecture/discussion

RUSN 2191.03: Survey of Russian Theatre. Conducted in English with a section in Russian for majors. An overview of Russian writing for the theatre, with emphasis on the nineteenth and twentieth centuries. FORMAT: Lecture/discussion

RUSN 2270.03: The Russian “Heroine”. Conducted in English. The strong spiritual and mental force which Russian women have exerted on their society is richly reflected in literature. The course focuses on the portrayal of several literary heroines and discusses their impact on both the literary imagination and society. FORMAT: Lecture/discussion

RUSN 2500.03: Tolstoy. Conducted in English. An introduction to the work of this enigmatic spiritual giant of Russian literature. Reading includes War and Peace, Anna Karenina, and Resurrection. FORMAT: Lecture/discussion

RUSN 2550.03: Russian and Eastern European Science Fiction. This course will provide an introduction to science fiction in the Russian and Eastern European contexts. Emphasis on the origins from fantastic elements of Russian literature, utopias, socialists, and dystopian impulses, as well as the post-Soviet experience as apocalypse. Authors will include: Gogol, Zamyatin, Capek, Bulatov, the Strugatskys, Lem, Pelevin. FORMAT: Lecture/discussion

RUSN 2750.03: Dostoevsky and the Russian Idea. Conducted in English. Dostoevsky’s novels are the highest importance in understanding the state of Russia and the thoughts of other great Russian authors and thinkers. Crime and Punishment and The Brothers Karamazov are taken as the basis for discussion. The works of F. Turgenev and Lev Tolstoy are discussed together with the ideas of such great Russian philosophers as V. Solovyov and N. Berdyaev. FORMAT: Lecture/discussion

RUSN 2760.03: Dostoevsky and Western Literature. Conducted in English. With all his love for Russia, Dostoevsky traversed the West and its literature. It is impossible to understand Dostoevsky and his main novels, including The Idiot and The Devils without Hamlet by Shakespeare and Don Quixote by Cervantes, Faust by Goethe, some plays by F. Schiller, etc. The course traces the influence of Western ideas on Dostoevsky and his influence on such Western thinkers as Nietzsche and Freud. FORMAT: Lecture/discussion

RUSN 3002.03: Advanced Russian I. Conducted in Russian. Following a thorough review, this course concentrates on expanding all aspects of the student’s knowledge of Russian grammar. Texts are read extensively and intensively. Discussion and compositions are based on the assigned readings. FORMAT: Lecture/discussion 3 hours PREREQUISITE: RUSN 2001.03 or (2002.03 and 2003.03) or equivalent EXCLUSION: RUSN 3000X/Y 03

RUSN 3003.03: Advanced Russian II. A continuation of RUSN 3002.03. FORMAT: Lecture/discussion 4 hours PREREQUISITE: RUSN 3002.03 or equivalent EXCLUSION: RUSN 3000X/Y 03

RUSN 3011.03: Grammar I. This course is offered in Russian only as part of the Intensive Russian Program in Russia. Continuation of RUSN 3001.03. FORMAT: Lecture/discussion 4 hours PREREQUISITE: RUSN 3000.06 or equivalent EXCLUSION: RUSN 3000X/Y 03

RUSN 3012.03: Grammar II. This course is offered in Russian only as part of the Intensive Russian Program in Russia. Continuation of RUSN 3001.03. FORMAT: Lecture/discussion 4 hours EXCLUSION: RUSN 3000X/Y 03

RUSN 3029.03: Conversation. Development of conversational skills and vocabulary building. FORMAT: Conversation practice PREREQUISITE: Student must be enrolled in the 3rd year grammar course or must have permission of instructor. EXCLUSION: RUSN 3001.06

RUSN 3031.03: Conversation. This course is offered in Russian only as part of the Intensive Russian Program in Russia. Conversation is the final stage of the intensive Russian Program and is aimed at the student’s development of sufficient proficiency in Russian. Conversation practice is a necessary stage in learning Russian. FORMAT: Lecture/discussion

RUSN 3032.03: Translation. This course is offered in Russian only as part of the Intensive Russian Program in Russia. Work on translation of literary, business and journalistic texts. FORMAT: Lecture/discussion

RUSN 3035.03: Literature: Reading and Analysis. This course is offered in Russian only as part of the Intensive Russian Program in Russia. Reading and analysis of literary texts.
RUSN 3090.03: Russian Society Today.
Basic institutions of Russian society are considered in their historical context, with special attention to the role of official culture and literature, the workings of the state, and mass social consciousness.
RECOMMENDED: RUSN 1000.06, 2nd year Russian (This course is part of the Fall term in Russian Program.)
FORMAT: Seminar
CROSS-LISTING: HIST 3090.03
RUSN 3091.03: Russian Intellectual History.
This course will examine intellectual developments in modern Russia, from Peter the Great to the late 20th century. Among the possible topics we will cover are: Russian thought and the West, the Russian intelligentsia and its relationship with the people and the state, Orientalism, the role of literature, arts, and music in Russian politics and society, the nature of dissent and revolutionary movements, as well as an analysis of ideological thought in Russia and culture. Throughout the course we will approach Russia as a multinational country that developed in constant and close interaction with the outside world.
FORMAT: Lecture/discussion
PREREQUISITE: Some Russian history required. Recommended are HIST 2021.03 or HIST 2022.03
CROSS-LISTING: HIST 3091.03
RUSN 3092.03: Russian Topics.
Topics to be studied and researched will vary from year to year. They may include the sources of Beloberezhnaya, the doctrine of peaceful coexistence, the position of national minorities, the role of literature (official and semiofficial) and the press, the Cult of Personality, Khlebnikov’s “Thieves,” Brezhnev, Gorbatchev, and Yeltsin.
RECOMMENDED: HIST 2020.06 or RUSN 2022.03/2023.03
FORMAT: Seminar
PREREQUISITE: One 2000-level course in History.
CROSS-LISTING: HIST 3092.03
RUSN 3096.03: The History of Ideas in Russia: From Official Nationality to Solzhenitsyn's Neo-Slavophily.
This course examines some of the main currents in Russian intellectual history from the middle of the nineteenth century through the 1990s. Topics include classical Slavophily and early Westernism, Populism and Nationalism, Anarchism, Marxism, Leninism, Socialist Realism, anti-Slavism, Glasnost, neo-Westernism (Salakho), and neo-Slavophily (Solzhenitsyn).
RECOMMENDED: HIST 2020.05 or RUSN 2022.03/2023.03
FORMAT: Lecture/discussion
CROSS-LISTING: HIST 3096.03
RUSN 3099.03: Solzhenitsyn Seminar.
Alexander I. Solzhenitsyn is one of the most controversial and influential Russian writers of the twentieth century. His life spanned the entire Soviet period and even now his creative output continues unabated. Solzhenitsyn’s books are an unique blend of literary imagination, philosophical reflections, memoirs and witness-bearing, historical conscience and chronicle. This seminar will study several of his more important historical works, those may include One Day in the Life of Ivan Denisovich, Cancer Ward, First Circle, Lenin in Zurich, Gulag Archipelago, August 1914 and subsequent volumes of the cycle.
FORMAT: Seminar
CROSS-LISTING: HIST 3099.03
RUSN 3102.03: Black Identity in Pushkin (Russian).
Conducted in Russian. Close analysis of the poetry and prose of the father of Russian literature, Aleksandr Sergeyevich Pushkin, needs to be grounded in the centrality of his Black identity for his life and oeuvre. Pushkin's unfinished work Arap Petra Velikogo serves as the window illuminating his artistic genius and struggle for a mode of expression for his own identity. The silences which shroud Pushkin's blackness are probed to reveal their ideological, historical, legal and human significance, which are then critically assessed. The major narrative and lyric poems, Eugene Onegin, the Little Tragedies, Boris Godunov, the Tales of Belkin, the Queen of Spades, as well as Pushkin's letters and critical works are revisited in this new light. Students will explore such themes as marginalization, liberty, conscience, aesthetic innovation, and the poet as political symbol and creator of a new literary language. Restoring Pushkin's identity to its proper place is a condition sine qua non – for understanding the true meaning of his work for modern literature and its ongoing influence on world culture.
FORMAT: Seminar
PREREQUISITE: RUSN 3001.03
EXCLUSION: RUSN 2001.03
RUSN 3103.03: Black Identity in Pushkin (English).
Conducted in English. A close study of the poetry and prose of the father of Russian literature, Aleksandr Sergeyevich Pushkin, needs to be grounded in the centrality of his Black identity for his life and oeuvre. Pushkin's unfinished work Arap Petra Velikogo serves as the window illuminating his artistic genius and struggle for a mode of expression for his own identity. The silences which shroud Pushkin's blackness are probed to reveal their ideological, historical, legal and human significance, which are then critically assessed. The major narrative and lyric poems, Eugene Onegin, the Little Tragedies, Boris Godunov, the Tales of Belkin, the Queen of Spades, as well as Pushkin's letters and critical works are revisited in this new light. Students will explore such themes as marginalization, liberty, conscience, aesthetic innovation, and the poet as political symbol and creator of a new literary language. Restoring Pushkin's identity to its proper place is a condition sine qua non – for understanding the true meaning of his work for modern literature and its ongoing influence on world culture.
FORMAT: Lecture/discussion
PREREQUISITE: RUSN 2001.03
EXCLUSION: RUSN 2001.03
RUSN 3104.03: Gogol and His Tradition.
In-depth analysis of selected masterpieces of Russian nineteenth and twentieth century fiction, including works by Pushkin, Lermontov, Gogol, Tolstoy, Solzhenitsyn, Chekhov, Babel, Nabokov, Kharms, Eppel, Dovlatov, Pelevin, and Sorokin.
CROSS-LISTING: ENGL 3800.03
RUSN 3106.03: Russian Prose and Poetry.
Conducted in Russian. Students read, translate, and critically interpret representative works of the nineteenth century. Original texts are supplied with vocabulary and grammatical notes.
FORMAT: Lecture/discussion
PREREQUISITE: Two years of Russian
EXCLUSION: RUSN 3121.03
RUSN 3109.03: Nabokov.
A close study of selected works by consummate twentieth century prose stylist Vladimir Nabokov -- novelist, poet, critic and translator, author of the notorious Lolita.
CROSS-LISTING: ENGL 3820.03
FORMAT: Lecture/discussion
PREREQUISITE: RUSN 3001.03 and 3003.03 or permission of the instructor
EXCLUSION: RUSN 2100.03
RUSN 3130.03: The History of Ideas in Russia: From Official Nationality to Solzhenitsyn's Neo-Slavophily.
This course examines some of the main currents in Russian intellectual history from the middle of the nineteenth century through the 1990s. Topics include classical Slavophily and early Westernism, Populism and Nationalism, Anarchism, Marxism, Leninism, Socialist Realism, anti-Slavism, Glasnost, neo-Westernism (Salakho), and neo-Slavophily (Solzhenitsyn).
RECOMMENDED: HIST 2020.05 or RUSN 2022.03/2023.03
FORMAT: Lecture/discussion
CROSS-LISTING: HIST 3099.03
RUSN 3136.03: 20th Century Russian Prose and Poetry.
Conducted in Russian. Students read, translate, and critically interpret representative works of the twentieth century. Original texts are supplied with vocabulary and grammatical notes.
FORMAT: Lecture/discussion
PREREQUISITE: Two years of Russian
EXCLUSION: RUSN 3121.03
RUSN 3330.03: Masterpieces of Russian Short Fiction.
In-depth analysis of selected masterpieces of Russian nineteenth and twentieth century short fiction, including works by Pushkin, Lermontov, Gogol, Tolstoy, Solzhenitsyn, Chekhov, Babel, Nabokov, Kharms, Eppel, Dovlatov, Pelevin, and Sorokin.
CROSS-LISTING: ENGL 3800.03
RUSN 3380.03: Gogol and His Tradition.
Author of “Overcoat,” “Nose,” Taras Bulba, Dead Souls, Gogol has been proclaimed “a pathological liar and honest anatomist of the soul, jejunie jokester and tragic poet, realist and fantast.” An in-depth study of this major writer.
FORMAT: Lecture/discussion
PREREQUISITE: RUSN 3099.03
EXCLUSION: RUSN 3120.03
RUSN 3520.03: Chekhov and Turgenev.
Conducted in English. Close analysis and discussion of the major works of Turgenev, sensitive portrayer of socio-political and psychological issues of the second half of the nineteenth century in Russia, and Chekhov, unquilted short-story writer and radical innovator in modern theatre.
FORMAT: Lecture/discussion
PREREQUISITE: RUSN 3001.03
EXCLUSION: RUSN 3122.03
RUSN 3600.03: Russian Topics.
Conducted in Russian. Close analysis and discussion of the major works of Turgenev, sensitive portrayer of socio-political and psychological issues of the second half of the nineteenth century in Russia, and Chekhov, unquilted short-story writer and radical innovator in modern theatre.
FORMAT: Lecture/discussion
PREREQUISITE: RUSN 3001.03
EXCLUSION: RUSN 3122.03
RUSN 3800.03: Nabokov.
A close study of selected works by consummate twentieth century prose stylist Vladimir Nabokov -- novelist, poet, critic and translator, author of the notorious Lolita.
CROSS-LISTING: ENGL 3820.03
FORMAT: Lecture/discussion
PREREQUISITE: RUSN 3001.03 and 3003.03 or permission of the instructor
EXCLUSION: RUSN 2100.03
RUSN 4000X/Y.06: The Structure of Contemporary Standard Russian.
This course is offered in Russian. Required for honors candidates. Synergetic study of the structure of Russian and analysis of special problems in phonology, morphology, syntax, and stylistics. Tailored to the individual needs of the student, with emphasis on practical applications of linguistic insights.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and final credit cannot be given for a single term.
FORMAT: Lecture/discussion 3 hours
PREREQUISITE: RUSN 3002.03 and 3003.03 or permission of the instructor
Sociology and Social Anthropology

Location: 6135 University Avenue, Room 1128
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-6593
Fax: (902) 494-2897
Website: http://sociologyandsocialanthropology.dal.ca/

Dean
Summerby-Murray, R., ATCL, Dip (Trinity College, London), BA, MA (Cantab), PhD (Toronto)

Chair
Gardiner Barber, Pauline (494-2069)

Undergraduate Coordinator
Gambold, L. (494-3699)

Graduate Coordinator
Fitting, E. (494-6388)

Professors Emeriti
Barkow, J. H., BA (CUNY), MA, PhD (Chi)
Binkley, M. E., BA, MA, PhD (Toronto)
Burke, P. M., BA (Minnesota), MA (UNB), PhD (Toronto)
Claremont, D. H., BA, MA (McMaster), PhD (Wash. U)
Thissessen, V., BA (Man), MA, PhD (Wis)

Professors
Apostol, R. A., BA (Simon Fraser), MA, PhD (Calif)
Gardiner Barber, P.T., BA, MA (Auck), PhD (Toronto)
Murphy, C. J. BA (St. FX), MA (Dalhousie), PhD (Toronto)

Associate Professors
Cooper, A., BA (Toronto), MA (Ottawa), PhD (Toronto)
Dulfois, L., BA (McGill), MA, PhD (New School)
Fitting, E., BA (Toronto), MA, PhD (New School)
Helfand, C., BA, MA (Concordia), PhD (Toronto)
Noble, B., BA, MA, PhD (Alberta)
Oakley, R., BA (Saint Mary's), MA, PhD (Toronto)
Ramos, M. H., BA (York), MA, PhD (McGill)
Whalen, E., BA (Winnipeg), MA (Queen's), PhD (Carleton)

Assistant Professors
Gambold, L., BA (Illinois), MA, PhD (UCLA)
Gray, J.-A., BA, MA (Laval), PhD (UQAM)
Hetherington, K., BA (Concordia), MA (Dalhousie), PhD (California (Davis)
Martín, E., BA (Queen's), MA, PhD (Melbourne)
Radice, M., BA (Oxford), MA (Oxford), PhD (INRS - UCN)
Yoshida, Y., BA (Osaka College), MA, PhD (McGill)

Adjunct Professors
Cohn, F., BA, MEd (Harvard), PhD (Minn)
Davis, A., BA (SMU), MA (Manitoba), PhD (Toronto)
Gamberg, H. V., BA (Brunei), MA, PhD (Princeton)
Khannabish, B., BA, MA, PhD (McMaster)
Lasker, D., BA (Carleton), MA (Waterloo), PhD (McMaster)
Morgan, T., BA (Ottawa), MA (McMaster), DPhil (Oxford)
Phillips, J., BA (Memorial), MA, PhD (McMaster)
Thompson, S., BA, BEd, MA (Dalhousie), PhD (Cambridge)
I. Introduction
Social Anthropology and Sociology are related and overlapping disciplines. Although in some universities they are found in separate departments, this Department and many of its courses blur the distinction between them and emphasize the areas of overlap. The Department is committed to a program which stresses the areas of convergence between the two disciplines. Social Anthropology is composed of four subfields, social-cultural, archaeological, biological, and linguistic. The strength of our program is the minor upon Social Anthropology. Admission to these programs is based solely on academic and demonstrated aptitude for, advanced study in either Sociology or Social Anthropology. The BA honours degree is offered through more specialized programs of study in Sociology or in Social Anthropology. Anthropology is composed of four subfields, social-cultural, archaeological, biological, and linguistic. The strength of our program is the minor upon Social Anthropology. Admission to these programs is based solely on academic and demonstrated aptitude for, advanced study in either Sociology or Social Anthropology.

II. Degree Programs
The Department's BA degree program is offered as a 15 credit minor or a 20 credit major in Sociology and Social Anthropology. The BA honours degree is offered through more specialized programs of study in Sociology or in Social Anthropology. Although in some universities they are found in separate departments, this Department and many of its courses blur the distinction between them and emphasize the areas of overlap. The Department is committed to a program which stresses the areas of convergence between the two disciplines. Social Anthropology and Sociology are related and overlapping disciplines. Although in some universities they are found in separate departments, this Department and many of its courses blur the distinction between them and emphasize the areas of overlap. The Department is committed to a program which stresses the areas of convergence between the two disciplines. Social Anthropology is composed of four subfields, social-cultural, archaeological, biological, and linguistic. The strength of our program is the minor upon Social Anthropology. Admission to these programs is based solely on academic and demonstrated aptitude for, advanced study in either Sociology or Social Anthropology.

A. Sociology
From its inception in the nineteenth century, sociology has been concerned with understanding the growth and evolution of modern societies. Classical sociologists attempted to identify universal laws of human behavior which would help them to understand the nature of social change and of social order: the role of the individual vis-à-vis the larger society, and the production and reproduction of social inequalities. While contemporary sociologists have abandoned the search for universal laws, the discipline continues to study the social context of human action, and has contributed substantially to knowledge and understanding of our own world.

B. Social Anthropology
Anthropology is composed of four subfields, social-cultural, archaeological, biological, and linguistic. The strength of our program is the minor upon Social Anthropology. Admission to these programs is based solely on academic and demonstrated aptitude for, advanced study in either Sociology or Social Anthropology.

A. Concentrated Honours BA Program
The Department’s honours programs are designed for students with an interest in, and demonstrated aptitude for, advanced study in either Sociology or Social Anthropology. Admission to these programs is based solely on academic performance. More specifically, the Department requires a grade average of B+ (3.30) or higher on courses above 1000 in SOSA and the minor (or second major) subject. In addition, a minimum cumulative GPA of 2.70 is required. Potential applicants should consult with one of the Department’s Undergraduate Advisors, preferably during their second year of study, and should plan to take the 1000 level courses required for honours during their third year. The Advisor will assist the student to design a program of study with a minor in Social Anthropology or Sociology meeting the general Faculty requirements and the specific requirements for each program as set out below. It is important that students have a strong foundation before undertaking the honours thesis; therefore, SOSA 2001 or SOSA 2002, and two of the required 3000 level courses are pre-requisites to the departmental Honours Seminars (SOSA 4000 Y/X or SOSA 4500 Y/X). Students who, after their third year, have not taken the pre-requisite courses may still do honours, but should plan to do so part-time over two years. The honours thesis paper is produced for the course SOSA 4500 Y/X (Sociology) or SOSA 4500 Y/X (Social Anthropology). This fulfills the College of Arts and Science Honours Qualifying Examination requirement. Students with the honours concentration in Sociology may not declare Social Anthropology as their secondary subject; students with the honours concentration Social Anthropology may not declare Sociology as their secondary subject.

Departmental Requirements

Courses required in Concentrated Honours in Social Anthropology:

1000 level
- One of: SOSA 1000.06, 1050.06, 1100.06, 1200.06, both 1002.03 and 1003.03
- SOSA 1001.06 or 1002.06 (King’s Foundation Year Program)

2000 level
- SOSA 2001.06 or 2002.06
- At least one additional 2000 level credit

3000 level
- SOSA 3400.03
- SOSA 3402.03
- SOSA 3403.03

4000 level
- SOSA 4000.06
- SOSA 4003.03
- One of: SOSA 4001.03, SOSA 4002.03, SOSA 4003.03, SOSA 4004.03, SOSA 4005.03, SOSA 4006.03

In total a minimum of nine and a maximum of 11 SOSA credits beyond the 1000 level are required.

Courses required in Concentrated Honours in Sociology:

1000 level
- One of: SOSA 1000.06, 1050.06, 1100.06, 1200.06, both 1002.03 and 1003.03
- SOSA 1001.06 or 1002.06 (King’s Foundation Year Program)

2000 level
- SOSA 2001.06 or 2002.06
- At least one additional 2000 level credit

3000 level
- SOSA 3400.03
- At least one additional 2000 level credit

4000 level
- SOSA 4003.03
- SOSA 4004.03
- SOSA 4005.03
- SOSA 4006.03

In total a minimum of nine and a maximum of 11 SOSA credits beyond the 1000 level are required.
B. Combined Honours in Sociology or Social Anthropology and another field

To be admitted to any of the Combined Honours programs, students must meet the same GPA requirements as for Concentrated Honours. Specifically, the Department requires a grade average of B+ (3.30) or higher in courses above 1000 in SOSA and the other honours subject. In addition, a minimum cumulative GPA of 2.70 is required.

The requirements noted below normally apply. In some cases a variation may be allowable when approved by honours advisors in both departments, for example when a similar course is required by both departments.

Courses required in Combined Honours with Sociology as the primary subject:

1000 level
- One of: SOSA 1000.06, 1050.06, 1100.06, 1200.06, both 1002.03 and 1003.03 or King's Foundation Year Program

2000 level
- SOSA 2002.06 (recommended) or 2001.06

3000 level
- SOSA 3401.03
- SOSA 3402.03
- SOSA 3403.03
- SOSA 3405.03

4000 level
- SOSA 4001.03 (recommended) or 4003.03
- SOSA 4005.06
- In addition, one of SOSA 4001.03, SOSA 4002.03, SOSA 4003.03, SOSA 4004.01, SOSA 4005.03, SOSA 4006.03

In total, a minimum of 11 and maximum of 14 credits beyond the 1000 level in the two honours subjects with a grade of "C" or better. Of this, at least five credits must be in the other honours subject.

Courses required in Combined Honours with Social Anthropology as the primary subject:

1000 level
- One of: SOSA 1000.06, 1050.06, 1100.06, 1200.06, both 1002.03 and 1003.03 or King's Foundation Year Program

2000 level
- SOSA 2001.06 or 2002.06

3000 level
- For Sociology: one of SOSA 3401.03, 3402.03, 3403.03 or 3405.03
- For Social Anthropology: one of SOSA 3400.03, 3402.03, 3403.03

In total, a minimum of 11 and maximum of 14 credits beyond the 1000 level in the two honours subjects with a grade of "C" or better. Of this, at least five credits must be in SOSA courses.

Courses required in Combined Honours with Sociology or Social Anthropology as the secondary subject:

1000 level
- One of: SOSA 1000.06, 1050.06, 1100.06, 1200.06, both 1002.03 and 1003.03 or King's Foundation Year Program

2000 level
- SOSA 2001.06 or 2002.06

3000 level
- For Sociology: one of SOSA 3401.03, 3402.03, 3403.03 or 3405.03
- For Social Anthropology: one of SOSA 3400.03, 3402.03, 3403.03

In total, a minimum of 11 and maximum of 14 credits beyond the 1000 level in the two honours subjects with a grade of "C" or better. Of this, at least five credits must be in SOSA courses.

C. Honours Conversion in Sociology or Social Anthropology

This program permits Dalhousie graduates to undertake an additional five credits upgrading their qualifications from the 15 credit BA to Honours. Students must meet the usual conditions for admission to honours, and complete the full set of Honours requirements in either Sociology or Social Anthropology. Interested students should consult an Undergraduate Advisor. Students with a 20 credit major may also upgrade to honours.

D. BA (20 credit) Major in Sociology and Social Anthropology

Departmental requirements

1000 level
- One of: SOSA 1000.06, 1050.06, 1100.06, 1200.06, both 1002.03 and 1003.03 or King's Foundation Year Program

2000 level
- Either SOSA 2001.06 or 2002.06
- At least one additional 2000 level credit

3000/4000 level
- Total of three full SOSA credits, including at least one half credit at the 4000 level

In total a minimum of six and a maximum of nine SOSA credits beyond the 1000 level are required.

E. BA (20 credit) Double Major in Sociology and Social Anthropology

Students must obtain at least 10 and no more than 14 credits beyond the 1000 level in two allied subjects, with no fewer than five and no more than eight in either.

Departmental requirements

1000 level
- One of: SOSA 1000.06, 1050.06, 1100.06, 1200.06, both 1002.03 and 1003.03 or King's Foundation Year Program

2000 level
- Either SOSA 2001.06 or 2002.06
- At least one additional 2000 level credit

3000/4000 level
- Two full SOSA credits at the 3000 level or above

F. BA (20 credit) Major in Sociology and Social Anthropology Conversion

This program permits Dalhousie graduates to undertake an additional year of study upgrading their qualifications from the 15 credit BA to the 20 credit BA. Students must meet the full set of Major requirements.

G. BA (15 credit) Minor in Sociology and Social Anthropology

See Minors in the College of Arts and Science section of this calendar (page 128).

H. Minor in Sociology and Social Anthropology

See Minors in the College of Arts and Science section of this calendar (page 128).

I. Minor in Sociology and Social Anthropology of Critical Health Studies

See Minors in the College of Arts and Science section of this calendar (page 128).
NOTE: Credit can only be given for this class if X and Y are completed in including development, politics, economics, health, law, art, and human rights. Anthropology can be applied to a wide range of academic and practical settings artists, boardroom rituals or street gangs. Theories and methods from Contemporary studies are just as likely to focus on development, migration, institutions, stratification, and so forth. Students also explore the various dimensions of social life, either in Canada or abroad: from politics to religion, from economy to sexuality. FORMA: Lecture

EXCLUSION: SOSA 1000X/Y.06, SOSA 1002.03/1003.03, 1050X/Y.06. FORMA: Lecture

SOSA 1003.03: People and Society. This course builds on the material developed in SOSA 1002 though the latter is not a requirement for students. By making use of the basic concepts in anthropology and sociology, students examine specific empirical cases relevant for the scientific study and understanding of human activities in the world today. Topics may include: control and deviance, gender and health, racial and ethnic inequality, self and identity, work and organization, globalization, and so on. FORMA: Lecture

EXCLUSION: SOSA 1000X/Y.06, SOSA 1002.03/1003.03, 1050X/Y.06. FORMA: Lecture

SOSA 1050X/Y.06: Explorations in Culture and Society. What are culture and society? How do we study and understand them? In order to answer these questions, the class introduces students to the key concepts in sociology and anthropology. Taking examples from Canada and around the globe, we will look at such topics as beliefs, values, power, social structure, economy and more. This class fulfills the first-year writing requirement. It also satisfies the prerequisite for enrolment in upper level classes in sociology and social anthropology. NOTE: Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMA: Writing Requirement, lecture

EXCLUSION: SOSA 1000X/Y.06, 1002.03/1003.03, 1050X/Y.06, or 1200X/Y.06.

SOSA 1100X/Y.06: Introduction to Anthropology. Social anthropologists study cultural diversity in western and non-western societies. Often living among the people they study, anthropologists attempt to understand the structures that shape and constrain peoples’ lives, and the ways in which people make sense of their changing circumstances. Classic studies focused on rural people in the developing world (hunter-gatherers, peasants, pastoralists). Contemporary studies are just as likely to focus on development, migration, artists, boardroom rituals or street gangs. Theories and methods from anthropology can be applied to a wide range of academic and practical settings including development, politics, economics, health, law, art, and human rights. NOTE: Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. FORMA: Lecture

EXCLUSION: SOSA 1000X/Y.06, 1002.03/1003.03, 1050X/Y.06 and 1200X/Y.06.

SOSA 1200X/Y.06: Introduction to Sociology. This class introduces students to basic sociological concepts, the logic of social inquiry, and major theoretical and methodological issues in the field. Substantive class contents may include the study of culture, socialization, deviance, social organizations, institutions, social roles, and demography. Emphasis is on the study of modern industrial societies with special attention given to Canadian society. NOTE: Students taking this class must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively. FORMA: Lecture

EXCLUSION: SOSA 1000X/Y.06, 1002.03/1003.03, 1050X/Y.06 and 1100X/Y.06.

SOSA 2001X/Y.06: Ethnography in a Global Context. Ethnography describes how people conduct their lives in a particular time and place. This class examines the challenge, complexity, strengths, and limitations of ethnographic knowledge and writing in Social Anthropology. Students will learn about a number of different ethnographic settings which may vary from year to year. A selection of ethnographic, oral, anthropological writing, and critical commentaries will be used to reveal how social anthropologists generate ethnographic knowledge about past and present societies, and why research priorities shift. Approval with International Development Studies. NOTE: Students taking this class must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively. FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03 and 1003.03, 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06.

SOSA 2002X/Y.06: The Sociological Perspective: Thinking and Doing Sociology. Sociology is interested in understanding the social world. They do not rely on preconceived ideas alone to enrich this understanding, but are the need to conduct studies, carry out investigations, make observations, analyze findings, formulate ideas, and construct theories and interpretations about what they find. This class looks at the ways sociologists go about their work. What are some of the dominant ways of thinking current in sociology today? What are the relationships between these ways of thinking and what are seen as questions to investigate? How do sociologists do their research? What are social surveys, interviews, theories, sociological ideas? What is distinctive about a sociological way of looking at a problem? NOTE: Students taking this class must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively. FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03 and 1003.03, 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06.

SOSA 2004.03: Current Controversies. This course will examine current social problems, puzzles and controversies. It will introduce perspectives to explore and understand social facts, critical events, and social debates. Readings and assignments will look at issues like the role of social networking media, environmental disasters, and contemporary commentaries will be used to reveal how social anthropologists generate ethnographic knowledge about past and present societies, and why research priorities shift. Approval with International Development Studies. NOTE: Students taking this class must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively. FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03 and 1003.03, 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06.

SOSA 2041.03: Describing Social Inequality. This course examines inequality in practice. The focus will be on applying understandings of inequality to empirically describe cases of injustice in order to look at measures, practices, and policies regarding inequality. The evidence used to describe inequality will be critically examined through theoretical considerations. Possible topics to be covered in readings and assignments include economic, social, cultural, political and health inequalities among other contemporary issues of social justice. FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03 and 1003.03, 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06.

EXCLUSION: SOSA 2040X/Y.06.

Sociology and Social Anthropology 309
FORMA T: Lecture

SOSA 2045.03: Indian Society: Change and Continuity.

The objective of this half-credit class is to introduce students to the society and culture of India from an interdisciplinary perspective. India presents a society of enormous complexity and an enduring living civilization of great antiquity. The focus of the class will be on selected, significant aspects of Indian society with particular emphasis on issues of current relevance. Topics discussed include: a historical background, social structure, political and social constraints to economic development, health issues, major religions and philosophy, development and foreign policy since independence, science and technology, disaster relief and development, and literature. This course counts as a half-credit in Sociology and Social Anthropology towards the IDS established discipline requirements.

FORMAT: Lecture
CROSS-LISTING: INTD 2045.03
EXCLUSION: INTD 3045.03

SOSA 2051.03: Chinese Culture.

This course explores the historical and literary backgrounds to modern Chinese culture by looking into different cultural characteristics of Chinese values, customs, myths, fables, society and social roles, food, fashion, dance, language and religion. In order to understand what constitutes Chineseeness and its transformation, the course also discusses the international contexts of Chinese diasporas (such as Chinese communities in North America, Taiwan, and Southeast Asia) and Western conceptualizations of Chinese culture in relation to other aspects of social life, i.e. economy and politics. No previous background in Chinese language or culture is required.

FORMAT: Lecture
PREREQUISITE: None

SOSA 2090X/Y.06: Youth and Society.

Events of enormous future consequences occur in the period between childhood and early adulthood. This course critically examines the arguments, with special focus on assessing the empirical evidence that might be used to support or refute them. That is, the context of youth will be used to illustrate the connections between argument and evidence, theory and data. Although the emphasis is on youth in Canadian society, a comparative perspective will be employed.

NOTE: Credit can only be given for the class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture

SOSA 2101.03: Environment and Culture.

Concerns about the environment are an increasingly global phenomenon as more people contribute to the problem and recognize the relationship to a changing ecology. Environmental issues like pollution, global warming, or resource depletion have global as well as personal implications. The efforts of cities to deal with environmental pollution, for example, may lead to conflicts with rural regions, and changes in consumption patterns in one country may have consequences for the environment of other countries. This course will explore key relationships between human culture and the physical environment. Topics to be examined may include: environmental knowledge, food and agriculture, environmental ethics, health, resource management, and conservation.

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1003X/ Y.06, 1100X/Y.06 or 1200X/Y.06
EXCLUSION: SOSA 2100.06

SOSA 2102.03: Political Ecology.

Environmental issues, like climate change and human societies, are always political issues. Whether we are talking about who gets to use a resource, or who has to clean it up afterwards, there are always have consequences for other aspects of people’s lives, and therefore the possibility for disagreement. The course will examine those phenomena where traditionally political questions about the distribution of resources or power within a society overlap with environmental questions, and where questions of environmental protection or regulation interact with struggles to control property. Topics covered may include competition over resources, the politics of environmental regulation, and the social and historical conditions that give rise to environmental disagreements, or the ways in which different plans for mitigating climate change affect global power dynamics.

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1003X/ Y.06, 1100X/Y.06 or 1200X/Y.06
EXCLUSION: SOSA 2100.06

SOSA 2111.03: Is there an Atlantic Canada?

This course will examine the historical and contemporary social issues related to the Maritimes and Atlantic Province. The course will critically assess what is meant by “Atlantic Canada” and look at its social, demographic, economic, and cultural trends in relation to the rest of the country. Attention will be given to the role of Acadia, Mi’kmaq, and African Nova Scotians as well as dominant power holders in the construction of Atlantic Canada.

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1003X/ Y.06, 1100X/Y.06 or 1200X/Y.06
CROSS-LISTING: CANA 2111.03

SOSA 2115.03: African Canadian Society, Culture, and Resistance.

There has been a presence of African peoples in Canada for over 400 years; however, the rich histories of African-Canadian people have been often ignored. This course examines African-Canadian society and culture from the historical to contemporary period. Topics will include historical analyses, slavery, patterns of immigration and settlement, family, continental African and diasporic connections, identity, arts, culture, education, employment, migration and the law, the media, diasporic debates, Black struggles and resistance, and African Canadian achievements. This course will be taught from a critical race and gender perspective, and will include readings about the diverse Black communities across Canada. There has been a presence of African peoples in Canada for over 400 years; however, the rich histories of African-Canadian people have been often ignored. This course examines African-Canadian society and culture from the historical to contemporary period. Topics will include historical analyses, slavery, patterns of immigration and settlement, family, continental African and diasporic connections, identity, arts, culture, education, employment, migration and the law, the media, diasporic debates, Black struggles and resistance, and African Canadian achievements. This course will be taught from a critical race and gender perspective, and will include readings about the diverse Black communities across Canada.

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1003X/ Y.06, 1100X/Y.06 or 1200X/Y.06
CROSS-LISTING: CANA 2115.03

SOSA 2140.03: Going Global; Geography, Economy, and Work in the 21st Century.

This course will explore the economic, industrial and organizational transformations which have affected world economies since the 1980s. The spatial reorganization of the international division of labour has led to “world cities”, and rapid concentration and dislocation, as well as exploitative economic enclosures as enclaves in global commodity chains. The emergence of an increasingly integrated international economic order are associated, in the advanced economies, with a shift in manufacturing, for which automobile production has been the standard example, to a service-dominated economy. This industrial transformation has been accompanied by shifts in organizational structures, whether the emphasis has been on increased operational flexibility, or downsizing, one is continuously faced with the impact of new information technologies on the workplace. Does the electronic storage and transmission of information cease to be acceptable, or do they represent new methods for controlling and exploiting an increasingly vulnerable workforce, particularly lower-class women and/or immigrants? This
course will employ the relevant portions of a standard Canadian sociological text to evaluate main tendencies, while selected anthropological case studies from different places will help understand the specific dynamics of a new, world economy.

FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 2141.03: Good Jobs, Bad Jobs.

The central task facing the new form of paid manual work are at the core of the advanced economies. While traditional jobs in the primary sector (fishing, farming, forestry), and in manufacturing are still components of contemporary societies, the attractive new work in the information economy, as well as the loss of desirable employment, available to the low end service jobs, are the new prospects we face. In addition, the intensified use of information technology has stripped away employment prospects, and is associated with increasing levels of unemployment, or with the double-edged transfer of paid work to the home. Higher rates of unemployment challenge the notion of increased leisure time in a materially abundant system, while changing gender relations reshape the meaning of unpaid work in the household.

FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 2181.03: Explaining Crime and Criminal Behavior.

What is crime, why do rates of crime vary, why do people commit crimes and how do social, cultural, psychological and biological theories and research findings explain crime as social and behavior phenomenon? Criminology is an interdisciplinary attempt to answer these questions through the social scientific study and analysis of crime and criminal behavior. This class introduces students to a broad variety of critical thinking, disciplinary theories, research studies and social policies, in order to help you understand and explain crime and show how these understandings inform the policies and politics designed to manage and prevent crime. This class provides a general but primarily sociological understanding of crime.

FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 2182.03: Exploring Crime and Criminal Behavior.

Though this is a stand-alone course it builds on the exploration of theories of crime addressed in 2181.03 and applies them to various “types” of crime and criminal behavior. Crime and crime behavior. This course pulls together various sources of knowledge to provide description and analysis of various patterns and types of crime and examines how this knowledge is applied in specific policies and practices aimed at managing and preventing crimes: typically by the criminal justice system. The course content covers Violent crimes such as murder, sexual assault, domestic violence, robbery and gang violence. Property crimes such as theft and motor vehicle theft, Organized crime, White Collar and Corporate crime and new forms of Global crime such as narco trafficking, human and organ smuggling and money laundering.

NOTE: Approved with Law and Society Minor.

FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 2190X/Y.06: Comparative Perspectives on Gender.

Applying theoretical perspectives drawn from anthropology and sociology, this class considers the underlying conditions for and consequences of gender inequalities in different historical and cultural contexts. The course begins with an overview of the study of gender relations in anthropology and sociology. Themes around which the class will be organized include the relationship between gender and the following: culture and difference, sexuality and reproduction; Labor; gender politics; power relations and political discourse; and gender in the global political economy. Approved with International Development Studies.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

CROSS-LISTING: GWST 2190X/Y.06

SOSA 2221X/Y.06: Society and the Self.

Groups influence individuals and individuals react to those influences. This is the field of Social Psychology. The processes involved in such person-group relationships are examined in a number of different settings, such as the family, mental hospitals, and universities. The class will focus on a critical review of research and theorizing.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

EXCLUSION: SOSA 2237.03

SOSA 2260.03: Society, Politics, and Culture.

You may not think of yourself as political but power is a process of everyday life. Although it is often assumed to be located in economic and political institutions, it is also important to consider that “the personal is political” and this too contributes to the negotiation of power. This course will explore how social processes affect and are shaped by material, institutional, and interactive processes. Contemporary examples of the interactions of these social forces will show how society and social anthropology can be used to identify otherwise hidden relationships.

FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 2270.03: Introduction to Popular Culture.

In this course, we will examine and discuss the various approaches and theories of popular culture in anthropology and sociology. Popular culture has been defined in multiple ways and attached to multiple objects and activities in society. We will consider how human beings take part in popular culture on one hand and how popular culture affects the rest of their lives on the other hand. Related themes include consumption, media, technology, communication, identity, ideology, stratification.

FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 2271.03: Popular Culture in a Global Context.

The course explores many different theories and manifestations of popular culture in a wide range of contexts. Popular culture as it intersects with films, television, the Internet, magazines, comics, cartoons, fashion, sports, music, etc., provides a rich tapestry in which social forces such as economic change, migration, globalization, and are shaped by material, institutional, and normative pressures. Contemporary examples of the intersection of these social forces will show how society and social anthropology can be used to identify otherwise hidden relationships.

FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 2291X/Y.06: Goblins, Ghosts, Gods, Gurus.

Societies and groups within societies differ in terms of what their members believe, how they view the world and their place within it, the sources of knowledge, attitudes toward the supernatural and the sacred, the status and authority of different sources of knowledge and what it all means. What makes religion different from science? What makes them similar? What is authority of different sources of knowledge and what it all means. What makes religion different from science? What makes them similar? What is authority of different sources of knowledge and what it all means. What makes religion different from science? What makes them similar? What is authority of different sources of knowledge and what it all means. What makes religion different from science? What makes them similar? What is authority of different sources of knowledge and what it all means. What makes religion different from science? What makes them similar? What is authority of different sources of knowledge and what it all means. What makes religion different from science? What makes them similar? What is authority of different sources of knowledge and what it all means.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMA: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

CROSS-LISTING: RELS 2291.06

SOSA 2300X/Y.06: Introduction to Social Problems.

The study of social problems uses sociological theory and research to examine the social dynamics and consequences of a variety of contemporary issues. Though the class content will vary year by year, students can expect to deal with social problems such as poverty, drug abuse, gender and race relations, work and alienation, and environmental issues.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
SOSA 2400X/Y.06: Health and Illness Across Cultures.

This course provides an introduction to the anthropology and sociology of health. It will examine illness and the experience of receiving medical care. We will cover such topics as: the biomedial model; medical school; the experience of chronic illness; medical science and technology; models of the doctor-patient relationship; and medical files. 

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 2402.03: Food Through Time and Space.

We will examine the concept of "food" through time and space so as to understand nutritional science, health, belifical systems, oral/lectural histories, ancient productive systems, foods and flora domestication techniques and their ongoing relevance to food entitlements in the contemporary world. Topics will be on non-European societies, communal tenure systems and a glance at the productive systems, flora and fauna domestication techniques and their ongoing relevance to food entitlements in the contemporary world. 

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06
EXCLUSION: MISC 2403.05

SOSA 2403.03: Food Activism.

In this course we will explore food movements and alternative food practices, especially in relation to the modern food system. We will discuss the key characteristics and critiques of the food system and focus on case studies of cultural practices and food activism from around the world which challenges or provides alternatives to the current food system. 

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06
EXCLUSION: MISC 2403.05

SOSA 2502.03: Biomedicine and the Illness Experience.

This course provides an introduction to the sociology of medicine, patienthood, and practitioner-patient relationships. The course is organized into two sections. The first section analyzes the theory and practice of medicine, our society's dominant system for addressing health problems. In the second section, we examine illness and the experience of receiving medical care. We will cover such topics as: the biomedical model; medical school; the experience of chronic illness; medical science and technology; models of the doctor-patient relationship; and medical files. 

FORMAT: Lecture
EXCLUSION: MISC 2503X/Y.06, SOSA 2503.03

SOSA 2503.03: Health and Society.

This course examines the social foundations of health and illness, community responses to health problems, and the structure of health care in Canada and internationally. Topics to be covered include: mortality and health, social inequality and the political economy of health and health care; the multinational pharmaceutical industry; environmental health; and the development of and 'crisis' in the Canadian Medicare system. 

EXCLUSION: SOSA 2503.01

SOSA 2933.03: Health and Culture.

This course explores health as it changes through culture and time with a focus on ancient and pre-capitalist societies in South Asia, Latin America, Africa, Middle East and Asia. The course will provide an overview of the course's specific topics vary from year to year but we will invariably explore global sensibilities of feeling healthy and "well" through an exploration of case studies highlighting ancient science and medicine, health taxonomies, oral history, ethnography, literature, poetry, music, oral genres, pregnancy; birth and caring of children; sense of disease and death. The weaknesses and strengths of Canada's increasingly privatized selective healthcare system become clear when compared it with the achievements made in societies that provided healthcare as a basic right. 

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06
EXCLUSION: SOSA 2933.01

SOSA 2966.03: Health and Illness through Culture and Space.

Every culture has its own concepts of health and nutrition, its own treatments and practices. This course explores health anthologies through contemporary culture and space. Topics may vary from year to year but we invariably will learn about contemporary cultures around the world in relation to sensibilities of what it means to feel healthy and "well" in the context of rapid economic and social change. We will explore religions, culture and efficacy; cultures of cuisines, smells; taste and health and wellness (proxemics; kinetics; how wellness; health and illness are embodied through time, space and culture); narratives of health (poets; music; oral genres); pregnancy; birth and caring of children; sense and death; the content of public health systems and the extent to which they incorporate these practices and beliefs. The weaknesses and strengths of our own system become clear when medical anthropologists compare it with the science and health systems of other societies. 

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06
EXCLUSION: SOSA 2966.03

SOSA 3002.03: Native Peoples of Canada.

This class uses an ecological perspective to describe the cultures and peoples occupying Canada at the time Europeans came to this continent. At time permits, some other cultures and the culture of contemporary Native peoples will be discussed. Films will be used to supplement lectures and readings. Approved with International Development Studies. 

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1050X/Y.06, 1100X/Y.06 or 1200X/Y.06
EXCLUSION: SOSA 2403X/Y.06

SOSA 3065.03: Knowledge, Work and Culture in the Contemporary World.

Since the publication of Daniel Bell's book, The Coming of Postindustrial Society, studies of the economic structure of the advanced societies have addressed the question of the extent to which we are living through a transition to a new, knowledge-driven economy which may be qualitatively distinguished from the system of industrial capitalism which has characterized North America and western Europe for most of this century. Whether one uses terms like "postindustrialism", "postmodernism" or "postmodernism", debates have centered on the question of fundamental alterations in the economic, cultural and political organization of technologically advanced societies. Are we witnessing the creation of an "information economy", are we observing the emergence of a new "knowledge class", which rules by virtue of its educational skills and credentials, is there a newunderclass being excluded from paid employment of any form, and is government being privatized to facilitate new forms of global economic integration? Are new types of social movements arising in response to basic changes in our society? This class will address the above questions, with particular emphasis being devoted to discuss issues in contemporary political economy. 

FORMAT: Lecture
SOSA 3006.03: Comparative Perspectives on Gender and Work.

This course is comparative in perspective to explore a range of topics relating to the gendering of work–wage work, household-based labour, the informal sector, masculinity and femininity at the workplace, occupational segregation, employment policies directed at changing the status quo (such as affirmative action, pay equity), and mini-work. The context will be the changing global political economy and its consequences for the strategies of different groups (such as unionized, but also trade union, female groups and employer groups). Approved with International Development Studies.

FORMAT: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3008.03: Canadian Society and Politics.

This class about the nature of Canadian society has its focus on the study of structures and events which shape social and political organizations in Canada. There is not only one way to understand Canadian society—generations of historians, political scientists and economists have provided valuable insights as to why Canadians have believed or acted in one way or another. Sociology and Social Anthropology have helped to understand Canada in terms of contexts and conditions of life which have shaped the evolution of society as we know it. This class explores issues, events, discourses and groups which have produced the recurrent themes that underlie social life in Canada.

FORMAT: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X/Y.06 or 1200X/Y.06

RECOMMENDED: SOSA 2101 or another course on Canadian society and/ or politics.

CROSS-LISTING: CANA 1008.03

SOSA 3009.03: Public Opinion in Canada.

This class will introduce students to the study of public opinion in Canada and impact on informed decision making. In particular, the focus will be upon open ideas and issues which have been held by groups and been influenced by the media. The lectures will explore the basis of our knowledge about the formation and change of public opinion relative to other forms of collective behaviour. We will present and analyze data relating to the role of public opinion in explaining and predicting political events.

FORMAT: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X/Y.06 or 1200X/Y.06

CROSS-LISTING: CANA 1009.03

SOSA 3013.03: Religion in Contemporary Society.

Religion is alive and well in society today; some religious organizations are in decline but others appear to be flourishing. How can these tendencies be accounted for? Do we live in a secular age or is that just a flip expression? What is the connection between societies and religions in terms of contexts and conditions of life which have shaped the evolution of society as we know it? This class explores issues, events, discourses and groups which have produced the recurrent themes that underlie social life in Canada.

FORMAT: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X/Y.06 or 1200X/Y.06

CROSS-LISTING: CANA 1009.03

SOSA 3014.03: Rethinking Culture and Class.

Critical cultural studies has become a vigorous focus of interdisciplinary scholarship drawing on the fields of history, anthropology, sociology, geography, and literary criticism. Researchers in all of these areas are reconsidering the significance of cultural aspects of social life and how the collective representations of cultural forms is related to changes in capitalism and modernity. For example, what is the significance of popular music in different class, gender, and ethnic contexts? How do commitments to kin and community relate to expressions of culture and class consciousness? Are boundaries between work and leisure mutable in terms of class, gender and ethnic processes? Approved with International Development Studies.

FORMAT: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3015.03: Popular Memory.

This class considers history-writing as a social and cultural process operating at personal, group and national levels. It examines theoretical, methodological and political questions raised in work on popular memory. Readings and films address the problems of: official history, public history (museums, national monuments), memory from below, and memory from above. We will learn from across the globe and in Canada.

FORMAT: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3031.03: Social Problems and Social Policy.

This class focuses on the nature of social problems and social policy in advanced industrial societies. It utilizes a social movement perspective, exploring the processes whereby action on behalf of undesirable but remedial social conditions leads to changes in social policy. Among the areas treated in depth are crime prevention, the quality of work life, race relations, deviance, and poverty and inequality.

FORMAT: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3060.03: Social Change and Development.

This class considers theories of social change and development; approaches to the analysis of rural and urban livelihoods at the micro level, and the examination of community, class, patronage and gender relations in both their economic and cultural aspects. The constructive uses of social analysis in the support and design of development initiatives are also discussed.

FORMAT: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X/Y.06 or 1200X/Y.06; or INTD 2001.03 or INTD 2002.03

SOSA 3071.03: Human Nature and Anthropology/ Sociology.

Do social anthropology and sociology suffer from "biophobia"? Can evolutionists explain why we feel sexual jealousy or why we tend to follow a dominant leader in times of stress? Can the theories that explain why we have fingerprints and flat nails account for why we are cultural animals? This class reviews theory and data on the evolution of human society and culture in order to construct a model of human nature and to argue that ethnographers vastly exaggerate the extent to which human societies differ from one another. Its perspective and content include much of what some have categorized as "Human Sociobiology," "Ethnobiology," "Darwinian Anthropology," "Darwinian Psychology," and "Darwinian Medicine."

FORMAT: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X/Y.06 or 1200X/Y.06; or an introductory class in either Psychology or Biology.

SOSA 3085.03: Self and Society.

This class explores the relationship between the self and the larger social context. It considers the interaction of personality experiences, interpersonal relations, group affiliation, and larger socio-cultural conditions. It examines how such interactions and institutions shape our concepts of who we should be, who we are, or who we might become. In addition the relationship between changes in society and changes in the self are explored. The course may consider these questions cross-culturally.

FORMAT: Lecture

PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X/Y.06 or 1200X/Y.06; or an introductory class in either Psychology or Biology.

SOSA 3091.03: The Sociology of Culture.

Does culture pervade all aspects of social life or are there specialized social domains which are "cultural"? What is the connection between societies and "cultures" and the "culture" of music or art? This course explores the question of how one can sociologically study culture. The course reviews classical and contemporary theoretical approaches to the social production, distribution and reception of culture. Broad themes include the discussion of cultural consumption, cultural identity, cultural change, and notions of cultural resistance. Specific "cultural objects" of study may include fashion, sport, class, and social problems.
The course concludes with analysis of the interaction of the fields of sociology and cultural studies.

FORMAL: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X.Y.06 or 1200X.Y.06

SOSA 3096.03: Introduction to Demography.
This class will explore the demographic techniques and theory used to describe the demographic structure and behavior of human populations. This course will cover the demographic transition, population growth, and aging in society. Students are expected to complete a project using primary sources.

FORMAL: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X.Y.06 or 1200X.Y.06

SOSA 3105.03: Media and Society.
This course provides an introductory overview to the theoretical and practical issues that concern media and society. It examines contemporary theories of mass communications and popular culture and engages the political economy of media, their impact on audiences, and the role they play in the political process.

FORMAL: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X.Y.06 or 1200X.Y.06

SOSA 3116.03: Issues in Social Research.
This course consists of the intensive examination of a selected area in social research. Since the specific topic which will receive special attention will differ from year to year, students are advised to consult the department prior to registration.

FORMAL: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X.Y.06 or 1200X.Y.06

SOSA 3129.03: Social Conflict.
This class introduces students to the various analytical perspectives sociologists have employed to understand the patterns and consequences of conflict in society. In this regard particular attention is devoted to the functional, conflict, and Marxist theories of conflict. This class is also concerned with conflict in contemporary society, with special reference to patterns of conflict and change in Canada.

FORMAL: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X.Y.06 or 1200X.Y.06

SOSA 3135.03: The Social Organization of Health Care.
The social organization of medicine and the politics of health are examined. Particular attention is paid to environmental and occupational health issues in light of technological and social change. Epidemiological patterns of morbidity and mortality are examined. Students are responsible for seminar presentations in areas of interest.

FORMAL: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X.Y.06 or 1200X.Y.06

SOSA 3143.03: Health, Illness and the World System.
Placing the political economic bases of health and illness in ethnographic context, this course is concerned with the ways that affluences of poverty become naturalized as biomedical experiences. Core questions pursued are as follows: 1) how is relative health affected by the world market processes in diverse global contexts? 2) how do afflictions of poverty become naturalized as biomedical experiences? 3) how do patients and communities activate alternative health infrastructures as they resist their marginalization in neo-liberal political agendas? 4) what kinds of illnesses do charismatic curative practitioners and wage labor migration (e.g. HIV/AIDS, SARS)? 5) how have market processes and profit seeking retarded the progress of scientific inquiry into modern illness? We will elucidate these questions by looking at case studies from Canada, South Africa, Sri Lanka, Spain and Israel.

FORMAL: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X.Y.06 or 1200X.Y.06

SOSA 3145.03: Gender and Health.
This course will explore the health implications of gender, race, and class. We will look at the ways in which gender, race, and class shape health outcomes, as well as the ways in which health outcomes shape gender, race, and class identities. We will examine the ways in which gender, race, and class intersect to shape health outcomes, as well as the ways in which health outcomes shape gender, race, and class identities.

CROSS-LISTING: GWST 3800.03

SOSA 3147.03: Aging Cross Culturally.
This online class will explore the array of beliefs and practices of aging and the life course cross-culturally. We will explore the enormous diversity in the aging experience around the world as well as the universals of human aging. Case studies will be examined to provide a substantive evidence of concepts examined in the course. This course will be useful for students in the social science and humanities as well as health professionals, nursing, gerontologists, to provide adequate knowledge and skills for culturally appropriate geriatric care.

FORMAL: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X.Y.06 or 1200X.Y.06

CROSS-LISTING: HLTH 4900.03

SOSA 3148.03: The Sociology of Addiction: Drugs, Health and Society.
This course explores how the meaning and significance of various drug-taking practices and addictive experiences are shaped by the social, cultural, political and economic contexts in which they take place. We will examine how perceptions of different drugs and addictions have changed over time, and how complex and competing political, cultural and economic forces shape drug law and policy. The general aim of the course is to de-individualize and de-pharmacological drug use and addiction, to better understand and address health consequences.

FORMAL: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X.Y.06 or 1200X.Y.06

SOSA 3149.03: Childhood in Cross Cultural Perspective.
This course explores childhood as an important reflection of socialization and thus a nexus of cultural and social values, ideas, and histories. In examining pregnancy, birth, infant development and socialization patterns, we ask: "What is involved? What is near universal, and what is indisputably variable?" The course tries to maintain a balance among three perspectives: those of the infant, those of the parents, and relevant cultural and historical factors that shape both of these. The course also seeks to maintain a balance between the biological, cultural and social nature of human behavior. Approved with International Development Studies.

FORMAL: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1005X-Y.06, 1100X.Y.06 or 1200X.Y.06
SOSA 3150.03: Sociology and Anthropology of the Body.
This class will consist of a micro-sociological examination of the human body as a socio-cultural construction. Topics include: bodily self-image, cultural definitions of physical attractiveness, stigmatization, prosaic behavior, non-verbal communications, body hygiene and pollution taboos, and cultural aspects of human reproduction and sexuality. Special attention will be paid to class, gender and ethnicity and their relationship to body politics.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06
CROSS-LISTING: GWST 3150.03

SOSA 3165.03: Peoples and Cultures of the World: Selected Area Studies.
This class examines a specific geographic and/or culture area. The class begins with background material on geography and history. Its focus is on the people themselves, their social organization and political, economic, and cultural systems. How they relate to globalization and development will also be examined. Consult the Department to find which region is to be covered in a given year. Approved with International Development Studies.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06
CROSS-LISTING: GEOG 3165.03

SOSA 3168.03: Issues in Latin American Society.
This course introduces students to case studies on contemporary Latin America. The goal of the course is to familiarize students with key social and cultural issues in the region. The focus of the course will change from year to year, and may include a particular country or region, or a theme or topic. Students should contact the department for details on the specific theme of the course in a given year. Approved with International Development Studies.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3175.03: Sociology of Education.
This course is intended to develop students’ knowledge about the relationship between schooling and other aspects of society. We will achieve this, in part, by examining the theoretical perspectives and practical implications of knowledge in and outside of schooling as a basis for the development of autonomous and confident individuals. Topics may include: social stratification, culture, and constraints, relations between family, community and educational attainment, and the changing social conditions that have had an impact on educational institutions.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3180.03: Special Topics in Sociology and Social Anthropology.
This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3181.03: Special Topics in Sociology and Social Anthropology.
This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3182.03: Special Topics in Sociology and Social Anthropology.
This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3183.03: Special Topics.
This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3184.03: Special Topics in Sociology and Social Anthropology.
This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3185.03: Issues in the Study of Indigenous Peoples of North America.
This seminar is concerned with the historical background of the Native-European situation in North America and with issues arising from this background. Students will research issues which are significant to themselves and important to Native groups. Topics covered may vary from year to year, but will normally include a combination of historical issues such as culture change and contemporary issues such as land claims, self-determination and government policy, and social conditions of Natives. Approved with International Development Studies and Law and Society minor.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06
CROSS-LISTING: CANA 3185.03

SOSA 3186.03: Special Topics in Sociology and Social Anthropology.
This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3187.03: Special Topics in Sociology and Social Anthropology.
This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06

SOSA 3188.03: Special Topics in Sociology and Social Anthropology.
This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.
FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X/Y.06, (1002.03 and 1003.03), 1093X/Y.06, 1100X/Y.06 or 1200X/Y.06

This course introduces students to case studies on contemporary Latin America. The goal of the course is to familiarize students with key social and cultural issues in the region. The focus of the course will change from year to year, and may include a particular country or region, or a theme or topic. Students should contact the department for details on the specific theme of the course in a given year. Approved with International Development Studies.

This seminar is concerned with the historical background of the Native-European situation in North America and with issues arising from this background. Students will research issues which are significant to themselves and important to Native groups. Topics covered may vary from year to year, but will normally include a combination of historical issues such as culture change and contemporary issues such as land claims, self-determination and government policy, and social conditions of Natives. Approved with International Development Studies and Law and Society minor.

This course is intended to develop students’ knowledge about the relationships between schooling and other aspects of society. We will achieve this, in part, by examining the theoretical perspectives and practical implications of knowledge in and outside of schooling as a basis for the development of autonomous and confident individuals. Topics may include: social stratification, culture, and constraints, relations between family, community and educational attainment, and the changing social conditions that have had an impact on educational institutions.

This course will consist of a micro-sociological examination of the human body as a socio-cultural construction. Topics include: bodily self-image, cultural definitions of physical attractiveness, stigmatization, prosaic behavior, non-verbal communications, body hygiene and pollution taboos, and cultural aspects of human reproduction and sexuality. Special attention will be paid to class, gender and ethnicity and their relationship to body politics.

This class will consist of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.
world, students will engage in critical reflections and debates about some of the
global international order (global terrorism, war, security). Students will also
technology (computer networks, cyberspace, information age, global media), and
(global pollution, health, food, unemployment, poverty), global regulations and norms
(identity, migration, hybridity, homogenization, heterogenization), global risks
multidimensional process. Students will discuss topics such as: global culture
This course examines various definitions and approaches to globalization as a
dependence on the other things and beings with which they coexist. In this class
Humans are aware as never before of their impacts on the environment, and their
SOSA 3200.03: Environmental Anthropology.
SOSA 3200.03: Special Topics in Sociology and Social Anthropology.
PREREQUISITE: One of SOSA 1000X/Y06, or (1002.03 and 1003.03), or 1050X/
SOSA 3189.03: Special Topics in Sociology and Social Anthropology.
PREREQUISITE: One of SOSA 1000X/Y06, (1002.03 and 1003.03), 1050X/
SOSA 3190.03: Social Movements.
SOSA 3220.03: Coastal Communities in the North Atlantic.
SOSA 3225.03: Culture, Rights and Power.
SOSA 3228.03: Belief Systems: Symbol, Myth, and Meaning.
SOSA 3245.03: Women and Aging.
SOSA 3222.03: Beauty Systems: Symbol, Myth, and Meaning.
PREREQUISITE: One of SOSA 1000X/Y06, (1002.03 and 1003.03), 1050X/
PREREQUISITE: One of SOSA 1000X/Y06, (1002.03 and 1003.03), or 1050X/
PREREQUISITE: One of SOSA 1000X/Y06, (1002.03 and 1003.03), 1050X/
PREREQUISITE: One of SOSA 1000X/Y06, (1002.03 and 1003.03), 1050X/
PREREQUISITE: One of SOSA 1000X/Y06, or (1002.03 and 1003.03)
PREREQUISITE: One of SOSA 1000X/Y06, or (1002.03 and 1003.03)
FORMA T: Lecture
CROSS-LISTING: ENV1 5101.03, GEO3 2202.03, CANA3 2202.03
SOSA 3111.03: Continuity and Change in Rural Societies.
SOSA 3190.03: Social Movements.
SOSA 3189.03: Special Topics in Sociology and Social Anthropology.
SOSA 3174.03: Living in a Globalized World.
SOSA 3211.03: Social Movements.
SOSA 3250.03: Beyond Genes and Circuits: The Anthropology and Sociology of Technoscience

This course uses the tools of the social sciences to understand the cultural and institutional practices of science and technology. Technology and science both drive and are driven by socioeconomic and cultural change. Little of our lives is unaffected by "technoscience" - the toys children play with, the scale of habitats and identity, the substances we eat, entertainment spots, the distribution of our friendships and the sources of our entertainment, the illnesses we get and the treatments we receive, how we make love and how we make war.

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X-Y, (1002.03 and 1003.03), 1090X-Y, 1100X-Y or 1200X-Y or permission of the instructor.

SOSA 3275.03: Crime and Public Policy

This class deals with the dynamics of change in the criminal justice system that reflect three major factors namely social movements (e.g., the victim movement, the women's movement), social forces (e.g., aging, multiculturalism), and internal processes (e.g., professionalism, rationalization). The class focuses on how outside pressures modify, and are channelled by, the criminal justice system. Approved with Law and Society minor.

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X-Y, (1002.03 and 1003.03), 1090X-Y, 1100X-Y or 1200X-Y.

SOSA 3281.03: Youth Crime

This class deals with criminal offenses committed by young persons. Ethologic dunes from various disciplines are examined and evaluated. A secondary focus concerns the criminal justice system as it applies to young offenders. Approved with Law and Society minor.

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X-Y, (1002.03 and 1003.03), 1090X-Y, 1100X-Y or 1200X-Y.

SOSA 3283.03: Globalized Security and Justice: the Challenge of Global Crime and Terrorism

Since the terrorist attacks of 9/11, the relationship between global processes and the local crime and violence has become more explicit. As new or enhanced global economic, political, cultural and environmental processes facilitate, protect and social and cultural values, there appears opportunity for both traditional and new kinds of crime and various forms of political and religious violence are being created. This course examines how globalization influences the various global and local conditions that create these new kinds crime and violence by exposing empirical explanations, and more empirically based case studies of different global crimes and terrorism movements. In addition we will look at how social and domestic crime and terrorism challenges the ability of western societies and states to ensure political order and security and examine how they are reconceptualizing both the rhetoric and reality of state governance and justice.

SOSA 3284.03: Living in Cities.

2008 marked the first time in history that more of the global population lived in cities than in rural areas. What perspectives to anthropology and sociology offer on this and their inhabitants? This course explores the social dynamics that constitute the "city" and surveys how social scientists have studied and engaged with cities and city-dwellers. It approaches "the city" both as a whole and through its constituent parts: people and places. Examples may be drawn from cities large and small, near and far - including Hobbiton.

FORMAT: Lecture and seminar
PREREQUISITE: One of SOSA 1000X-Y, (1002.03 and 1003.03), 1090X-Y, 1100X-Y or 1200X-Y or FYP or PLAN 2005.03
CROSS-LISTING: GEOG 3284.03

SOSA 3285.03: Sociology of Law.

This course is a sociological examination of law both as a mechanism of social regulation and as a field of knowledge. It explores classical and contemporary approaches to law and its contexts. Emphasis is placed on the relationship of theory to the choice of methodology. Students are exposed to basic tools and procedures which will help them to analyze the numerical tables and graphs they may come across in sociological or anthropological journals. Other relevant issues will be included, such as, whether it is possible to achieve objectivity when analysing human behaviour. It is assumed students are enrolled in this class possess basic computer skills.

FORMAT: Lecture/lab as required
PREREQUISITE: One of SOSA 1000X-Y, (1002.03 and 1003.03), 1090X-Y, 1100X-Y or 1200X-Y; and SOSA 2001x-Y or 2002X-Y.

SOSA 3290.03: Society and the Police.

The police play an increasingly powerful role in the maintenance of social order in contemporary Canadian society. This class introduces students to sociological theory and research on: (a) the role of police in social development and social control; (b) the historical and political development of public policing; (c) the nature and structure of police work; (d) control and accountability and (e) selected issues in policing such as, policing the family, minorities and the police, community based policing and police discretion. Approved with Law and Society minor.

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X-Y, (1002.03 and 1003.03), 1090X-Y, 1100X-Y or 1200X-Y.

SOSA 3310.03: Indian Society: Change and Continuity.

The objective of this class is to introduce students to the society and culture of India from an interdisciplinary perspective. India presents a society of enormous complexity and an unforeseen living civilization. Approved with International Development Studies.

FORMAT: Lecture and seminar
PREREQUISITE: Second-year Arts and Science class

SOSA 3400.03: History of Anthropological Theory.

This class considers the foundations and development of social anthropology. Major theoretical schools and the work of prominent anthropologists in those schools are considered, including Cultural Evolution, Historical Particularism, Functionalism, Culture and Personality, Structuralism, Symbolism, Cultural Materialism, and the directions in which contemporary sociocultural anthropological point.

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X-Y, (1002.03 and 1003.03), 1090X-Y, 1100X-Y or 1200X-Y; and SOSA 2001X-Y or 2002X-Y.

SOSA 3401.03: History of Sociological Thought.

Towards the middle of the nineteenth century a novel way of thinking about human existence began to emerge. Primary was given to the understanding that humans are social beings, their lives and thoughts bound and patterned by their social environments. This approach formed the basis for a new discipline of analysis-empirically named Sociology. This class considers some of the main ideas of the earlier contributors to the new way of thinking: Comte, Marx, Mead, Durkheim, Weber, Simmel, Meadman and, more recently, Parsons and Schatz. Sociology is a science largely on the intellectual legacy of these thinkers. This class will ask questions and formulate answers to them which remain relevant to the sociological enterprise today.

FORMAT: Lecture
PREREQUISITE: One of SOSA 1000X-Y, (1002.03 and 1003.03), 1090X-Y, 1100X-Y or 1200X-Y; and SOSA 2001X-Y or 2002X-Y.

SOSA 3402.03: Figuring Out Society.

This course provides an introduction to issues of research design, including the relationship of theory to the choice of methodology. Students are exposed to basic tools and procedures which will help them to analyze the numerical tables and graphs they may come across in sociological or anthropological journals. Other relevant issues will be included, such as, whether it is possible to achieve objectivity when analysing human behaviour. It is assumed students are enrolled in this class possess basic computer skills.

FORMAT: Lecture/lab as required
PREREQUISITE: One of SOSA 1000X-Y, (1002.03 and 1003.03), 1090X-Y, 1100X-Y or 1200X-Y; and SOSA 2001X-Y or 2002X-Y.

SOSA 3403.03: Qualitative and Field Methods.

Research is a craft requiring many skills. This class focuses on skills relevant issues will be included, such as, whether it is possible to achieve objectivity when analysing human behaviour. It is assumed students are enrolled in this class possess basic computer skills.

FORMAT: Lecture/lab as required
PREREQUISITE: One of SOSA 1000X-Y, (1002.03 and 1003.03), 1090X-Y, 1100X-Y or 1200X-Y; and SOSA 2001X-Y or 2002X-Y.

SOSA 3405.03: Contemporary Social Theory.

A variety of approaches constitutes theory in contemporary sociology. Among them are those called interactionist, ethnomethodological, structuralist, critical, feminist, rational choice, and post-modernist. This class considers the contributions of these approaches to the enterprise of modern sociology. What are
the main premises of particular sociological theories? What are their implications for the study and understanding of the social world? What are the issues that evoke debate between different schools of theory?

FORMAT: Seminar
PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03 and 1003.03, 1005X/Y.06, 1000X/Y.06 or 1200X/Y.06; and SOSA 2001X/Y.06 or 2002X/Y.06

SOSA 4000X/Y.06: Honours Seminar in Social Anthropology
This seminar provides an opportunity for students to engage in sustained investigative scholarship through independent research initiatives. The first term concentrates on locating the student's work within a broader set of theoretical and methodological debates in the discipline, while the second term is devoted to students' research and writing activities in preparing the thesis required for honours graduation. In the second term, class time is used for students to outline "in progress" reports and presentations about their chosen topics. The class carries two separate grades, one for the class and the other for the thesis, appearing on the transcript as "honours--qualifying examination" (a University requirement for all honours students SOSA 8880.00).

NOTE: Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Seminar
PREREQUISITE: Honours registration in Social Anthropology and SOSA 2001 (recommended) or SOSA 2002, and two of SOSA 3400, SOSA 3402 and 3403, or permission of the instructor

SOSA 4001.03: Quantitative Analysis for the Social Sciences I
This class will introduce quantitative analysis. It will engage issues of research design, the relationship between sample and populations, statistics and inference, as well as basic tests of statistical significance. The course will also introduce tabular, graphical, and bivariate linear analysis, using computer software. It will encourage secondary data analysis of available datasets, evaluation of surveys, and develop skills through a series of class projects.

FORMAT: Seminar
PREREQUISITE: SOSA 3402.03 and fourth year Major or Honours standing in Sociology and/or Social Anthropology
CROSS-LISTING: SOSA 3801.03

SOSA 4002.03: Quantitative Analysis for the Social Sciences II
This course will focus on the use of quantitative methods in social science research. It will introduce students to regression techniques and concentrate on the assumptions motivating quantitative analysis. The course will also look at regression diagnostics and critical weight options available to researchers when "normal" assumptions are broken. The class will be split into lectures and computer labs using statistical software. The labs will apply methods covered in class and explore potential secondary data resources. The class will develop these skills through a series of class projects.

FORMAT: Seminar
PREREQUISITE: SOSA 3402.03, SOSA 4001.03 and fourth year Major or Honours standing in Sociology and/or Social Anthropology
CROSS-LISTING: SOSA 3802.03

SOSA 4003.03: Contemporary Perspectives in Ethnography
Ethnographies and critical writings which grapple with questions of theory and representation in a range of contexts – near and far, familiar and strange, local and global – will be examined in this class. Approved with International Development Studies.

FORMAT: Seminar
PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03, 1003.03, 1005X/Y.06, 1100X/Y.06 or 1200X/Y.06; and SOSA 2001X/Y.06 or 2002X/Y.06; and fourth year Honours standing in Sociology and/or Social Anthropology
CROSS-LISTING: SOSA 3803.03

SOSA 4004.03: Issues in Economy, Work and Development
Commenting on a review of the multiple meanings of neoliberalism, this course will examine changing relationships to employment and "home" under conditions of economic insecurity. Such conditions have long been prevalent in what is termed the "global south" but are now more obviously present in class-divided northern societies, including Canada included. How do people, men and women, young and old, react to increasingly precarious conditions of employment and uncertain futures? Is employment-related mobility becoming an accepted pattern of living, even in stable communities where people had previously relied on secure livelihoods shared between generations? How does migration and immigration shape new understandings of community? How are people's sense of themselves and others, their subjectivities, being reshaped through new political and economic realities? In addition to some key theoretical readings, we will explore these issues through a close reading of several critical ethnographies.

FORMAT: Seminar
PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03, 1003.03, 1005X/Y.06, 1100X/Y.06 or 1200X/Y.06; and fourth year Honours standing in Sociology and/or Social Anthropology

SOSA 4005.03: Issues in Social justice and Inequality
Each year, the "issues" class focuses on a different specific topic within the general area. In past years topics have addressed the social and moral problems of social inequalities of various kinds viewed in the context of global changes. Sample topics include but are not restricted to: gender, minority and class inequalities; struggles over rights; social movements; social scenarios surrounding citizenship, migration and immigration; multiculturalism; and border and security studies. Consult Department for specific topic.

FORMAT: Seminar
PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03, 1003.03, 1005X/Y.06, 1100X/Y.06 or 1200X/Y.06; and fourth year Honours standing in Sociology and/or Social Anthropology

SOSA 4006.03: Issues in Critical Health Studies
Each year, this "issues" class focuses on a different specific topic within the general area. In past years topics have addressed how health is socially and culturally constructed, the differential social and cultural affects of health and illness, the role of health care, the knowledge and power relationships, and how various perspectives on health are challenged from within and beyond the health professions. Consult Department for specific topic.

FORMAT: Seminar
PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03, 1003.03, 1005X/Y.06, 1100X/Y.06 or 1200X/Y.06; and fourth year Honours standing in Sociology and/or Social Anthropology

SOSA 4012.03: 4013.03: Issues in Sociology and Social Anthropology
This seminar consists of an intensive examination of selected substantive issues within Sociology and Social Anthropology. Since the specific topic or research problem which arouses special treatment will differ from year to year, students are advised to consult the department prior to registration.

FORMAT: Lecture and seminar
PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03, 1003.03, 1005X/Y.06, 1100X/Y.06 or 1200X/Y.06; and fourth year Honours standing in Sociology and/or Social Anthropology

SOSA 4014.03: Special Topics
This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

FORMAT: Lecture and seminar
PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03, 1003.03, or SOSA 1050; or SOSA 1100 or SOSA 1200 AND SOSA 2001 or 2002

SOSA 4015.03: Special Topics
This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

FORMAT: Lecture and seminar
PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03, 1003.03, or SOSA 1050; or SOSA 1100 or SOSA 1200 AND SOSA 2001 or 2002

SOSA 4016.03: Special Topics
This course consists of an intensive examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

FORMAT: Lecture and seminar
PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03, 1003.03, or SOSA 1050; or SOSA 1100 or SOSA 1200 AND SOSA 2001 or 2002

318 Sociology and Social Anthropology
SOSA 4017.03: Special Topics.
The course consists of an in-depth examination of a selected substantive issue within Sociology and Social Anthropology. Since the specific topic or research problem will vary from year to year, students are advised to consult the department prior to registration.

SOSA 4031.03: Social Policy Research Seminar.
One of the distinctive features of the social sciences has been the use of social research as a basis for the development and reform of social policy. Through the relationship of social research to social policy has changed and evolved with changes in the politics and process of policy making, it still remains a core activity for many social scientists. Using a variety of academic and applied research sources, the seminar will examine the politics of policy research, uses of social research knowledge, policy research models and research strategies and the policy outcomes of social research. In addition to reviewing the critical literature on social policy research, students will do case study analyses of the formulation of major policy research projects. The course will selectively draw on faculty, government and private sector policy analysts and policy makers to help ground discussion and research in actual policy research experience.

FORMA T: Seminar
PREREQUISITE: SOSA 2000X/Y.06, 1002.03, 1003.03, 1050X/Y.06, 1100X/Y.06, 1200X/Y.06 and fourth-year Major or Honours standing in Sociology and/or Social Anthropology.
CROSS-LISTING: SOSA 5001.03

SOSA 4205.03: Moral Panics as a Social Phenomenon.
If we relied solely on mass reports emanating from the mass media, we might well form the impression that every few years a particular form of allegedly immoral and/or undesirable behavior becomes so widespread as to endanger the very foundation of society. Where such socially shared fears and concerns are exaggerated — i.e., all out of proportion to the actual threat when judged from a rational or empirical perspective — social scientists refer to them as "moral panics." This class will apply sociological analysis to documented case studies of such panics, both past and present. Examples would include public anxiety about communist infiltration of the U.S. government in the 1950s or, more recently, popularized scares over child sexual abuse, satanism, or serial killing. Particular attention will be paid to the social processes that generate, sustain, and erode adherence to such beliefs.

FORMA T: Seminar
PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03, 1003.03, 1005X/Y.06, 1100X/Y.06 or 1200X/Y.06 and fourth-year Major or Honours standing in Sociology and/or Social Anthropology.
NOTE: Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

SOSA 4210.03: Tourism and Development.
Tourism is now the most lucrative industry in the world. Around the globe, countries frame the tourist dollar offering the best deals on wide range of destinations tailored to a variety of different experiences from sex tourism to eco-tourism. This class will explore the relationship between tourism and development. Topics under discussion will include the definitions of hosts and guests, the commercialization of tourist sites and the tourist experience, and the relationship of tourism to sustainability, environmentalism, and globalization. Approvals with International Development Studies.

FORMA T: Seminar
PREREQUISITE: One of SOSA 1000X/Y.06, 1002.03, 1003.03, 1005X/Y.06, 1100X/Y.06 or 1200X/Y.06 and fourth-year Major or Honours standing in Sociology and/or Social Anthropology.
CROSS-LISTING: SOSA 5007.03

SOSA 4211.03: Embodying the Body: The Human Body for Anatomists and Humanists.
This course explores the form and function of the human body and how these relate to broader issues associated with what it means to be human. The course begins with an anatomical exploration of the body, then expands into contemporary issues about the body and embodiment, including gender identity, beauty, etc. (This course does not fulfill the 4000 level elective requirement for Sociology and Social Anthropology honour students.)

FORMA T: Lecture/lab
PREREQUISITE: SOSA 2500X/Y or SOSA 5150, permission of the instructor required.
CROSS-LISTING: ANANT 5555

SOSA 4400X/Y.06: Applying Sociology and Social Anthropology Inside, Outside, and Beyond University.
This is a "capstone" class for SOSA majors and double majors in their fourth and final year of undergraduate studies. The class should be especially relevant to students hoping to enter social work, law, business administration, counseling, community organizing, public service, occupational therapy, medicine or other health professions. The primary focus in the first term will be to introduce, reflect upon, and discuss students' university and life experiences, vocational plans beyond university, and responsibilities as a citizen in democratic society. Work in the second term of the class will revolve around the choosing, planning, execution, and analysis of an experiential learning project. This project might involve volunteering at a community service agency, serving as a tutor or mentor to first-year Dalhousie students, or doing a piece of applied social research for a campus or community organization. This project will culminate in the preparation and presentation of a major essay outlining what students have learned from this exercise. Throughout the year every effort will be made to improve students' abilities for introspection, written and oral communication, critical thinking, and group leadership.

The class will be strictly limited to a maximum of 20 students. Enrollment in the class requires instructor's permission.

NOTE: Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMA T: Seminar
PREREQUISITE: SOSA 2001X/Y.06 or 2002X/Y.06 and fourth-year standing in the SOSA 20-credit major double major program.
EXCLUSION: SOSA 4000X/Y.06, 4005X/Y.06

SOSA 4500X/Y.06: Honours Seminar in Sociology.
This seminar provides an opportunity for students to engage in sustained investigative scholarship through independent research initiative. The first term concentrates on locating the student's work within a broader set of theoretical and methodological debates in the discipline, while the second term is devoted to students' research and writing activities in preparing the thesis required for honours graduation. In the second term, class time is used for students to make "in progress" reports and presentations about their chosen topics. The class cuts two separate grades, one for the class and the other for the thesis, appearing on the transcript as "honours-qualifying examination" (a University requirement for all honours students SOSA 8880.00).

NOTE: Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMA T: Seminar
PREREQUISITE: Honours registration in Sociology and SOSA 2002 (recommended) or SOSA 2001 and two of SOSA 3401, 3402, 3403 and 3405 or permission of the instructor.

SOSA 4510.03: 4520.03: Readings in Sociology/Social Anthropology.
In a reading class the student is assigned to a member of staff for regular meetings to discuss readings in assigned area. Papers and research projects are expected.

FORMA T: Individual instruction
PREREQUISITE: Honours registration in Sociology or Social Anthropology, permission of the instructor and permission of the Undergraduate Coordinator.
Spanish and Latin American Studies

I. Introduction

Spanish opens the door for you into exciting and diverse cultures in more than 20 countries - it is the first language of over 400 million people, and the second most widely spoken language in the world (after Chinese). The Spanish-speaking world is home to fascinating people, traditions and institutions, and the Department of Spanish and Latin American Studies is your gateway into this vibrant world.

We warmly welcome students interested in starting Spanish as well as those who already have some experience with the language. Our degree options for the study of the language, literatures and cultures of the Spanish-speaking world are highly practical choices, and also complement studies in such diverse disciplines as political science, sociology and social anthropology, literature, linguistics, history, international development studies, intercultural communication, economics, commerce, and many others.

Fluency in Spanish will be useful to all students seeking careers in the foreign service and NGOs, in business and banking, as entrepreneurs, interpreters, translators, teachers, professors, editors, journalists, and many others. Our language courses emphasize skills acquisition and communicative competence; once you have mastered the fundamentals, a whole world of diverse interests is open to you to engage with: history, politics, social issues, international development, literature, films, art, business and many others.

II. Diplomas of Spanish as a foreign Language (DELEs)

The Diploma of Spanish as a foreign Language (DELE) is the official accreditation of the degree of fluency of the Spanish language, issued and recognized by the Spanish Ministry of Education, Culture and Sport. The Instituto Cervantes is in charge of organizing the exams, while the University of Salamanca is in charge of the preparation, correction and final evaluation of all the tests. The exams test your ability to read, write, speak and understand Spanish. There are six levels of DELEs offered that match the divisions determined by the Common European Framework of Reference for Languages:

- Diploma de Español A1: Beginner level: You can understand and use daily expressions frequently used in any part of the Spanish-speaking world, aimed at satisfying immediate needs-asking and giving basic personal information about yourself and daily life, and interacting on a basic level with speakers, whenever they are speaking slowly and clearly, and are willing to cooperate.
- Diploma de Español A2: Intermediate level: You have the necessary knowledge of the language to allow control in situations which require a basic use of the language.
- Diploma de Español B1: Elementary level: You are capable of understanding daily phrases and expressions frequently used related to areas of experience that are particularly relevant to your basic information about yourself and your family, shopping, places of interest, occupations, etc.
- Diploma de Español B2: Upper intermediate/proficiency level: You have the ability to cope in common situations of daily life which require a specialized use of the language.
- Diploma de Español C1: Mastery/advanced level: You are able to communicate in all situations requiring a specialized use of the language and knowledge of cultural background.
- Diploma de Español C2: Upper intermediate/proficiency level: You have the ability to cope in common situations of daily life which require a specialized use of the language.

The exams are offered in November and May in more than 50 countries around the world. The Department of Spanish and Latin American Studies organizes the examinations at Dalhousie every spring.

For more information about the format of the exam, dates and application deadlines, contact the Spanish Department DELE coordinator.

III. Degree Programs

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar.

A. BA (15 credit) Minor in Spanish Language

See Minors in the College of Arts and Science section of this calendar (page 128).

B. BA (20 credit) BA Major in Spanish Language

(Minimum of six full credits, a maximum of nine full credits in Spanish. At least three of these full credits MUST be at the 3000 level.)

Requirements:

- SPAN 2025.V0.03 full credit (this does not constitute your language requirement)
- SPAN 3020.03 half credit or SPAN 3025.03 half credit
- SPAN 3035.03
- SPAN 3036.03
- A full credit in Spanish and Spanish-American Literature
- Any two half credits of Spanish Civilization, Spanish-American Civilization or Hispanic Culture (this includes SPAN 2048, 2090, 2070, 2091, 2100, 2105, 2150, 2151)
- One additional full Spanish credit at the 3000 or 4000 level

320 Spanish and Latin American Studies
C. BA (20 credit) Double Major in Spanish

(A combination of 10 full credits, with a minimum of five full credits in Spanish.)

Requirements:
- SPAN 2020X/Y.06 full credit or equivalent
- SPAN 2069.03 half credit (this does not constitute your literature requirement)
- SPAN 3036.03
- SPAN 3035.03
- SPAN 3020.03 half credit or SPAN 3025.03 half credit
- SPAN 2090.03 half credit (this does not constitute your literature requirement)
- One additional full Spanish credit at the 3000 or 4000 level.

D. BA with Honours in Spanish

Potential Honours applications are encouraged to consult the Department’s Undergraduate Advisor during their second year of study. Deadline for application should be three semesters before your graduation. (A minimum of nine full credits in Spanish.)

Requirements:
- SPAN 2020X/Y.06 full credit or equivalent
- SPAN 2069.03 half credit (this does not constitute your literature requirement)
- SPAN 3036.03
- SPAN 3035.03
- SPAN 3020.03 half credit or SPAN 3025.03 half credit
- SPAN 2090.03 half credit (this does not constitute your literature requirement)
- Two full credits in Spanish and/or Spanish-American Literature
- Any two half credits of Spanish Civilization, Spanish-American Civilization or Hispanic Culture (this includes SPAN 2069, 2070, 2109, 2110, 2105, 2150, 2200)
- 3.5 optional full Spanish credits. At least one full credit at the 3000 or 4000 level
- SPAN 4980.03 Student must complete an Honours Thesis in Spanish.

E. BA with Combined Honours

(A combination of 11 full credits):

- If Spanish is your primary major, a minimum six credits Spanish and an honour’s thesis completed in Spanish and Latin American Studies Department.
- If Spanish is your secondary major, a minimum of five credits in Spanish.

Requirements (if Spanish is your primary major):
- SPAN 2020X/Y.06 full credit or equivalent
- SPAN 2069.03 half credit (this does not constitute your literature requirement)
- SPAN 3036.03
- SPAN 3035.03
- SPAN 3020.03 half credit or SPAN 3025.03 half credit
- SPAN 2090.03 half credit (this does not constitute your literature requirement)
- Two full credits in Spanish and/or Spanish-American Literature
- Any two half credits of Spanish Civilization, Spanish-American Civilization or Hispanic Culture (this includes SPAN 2069, 2070, 2109, 2110, 2105, 2150, 2200)
- Half a credit in Spanish at the 3000 or 4000 level
- SPAN 4980.03 Student must complete an Honours Thesis in Spanish.

Requirements (if Spanish is your secondary major):
- SPAN 2020X/Y.06 full credit or equivalent
- SPAN 2069.03 half credit (this does not constitute your literature requirement)
- SPAN 3036.03
- SPAN 3035.03
- SPAN 3020.03 half credit or SPAN 3025.03 half credit
- SPAN 2090.03 half credit (this does not constitute your literature requirement)
- Two full credits in Spanish and/or Spanish-American Literature
- Any two half credits of Spanish Civilization, Spanish-American Civilization or Hispanic Culture (this includes SPAN 2069, 2070, 2109, 2110, 2105, 2150, 2200)
- Half a credit in Spanish at the 3000 or 4000 level
- SPAN 4980.03 Student must complete an Honours Thesis in Spanish.

F. Minor in Spanish Language

See Minors in the College of Arts and Science section of this calendar (page 128)

G. Minor in Hispanic Literature

See Minors in the College of Arts and Science section of this calendar (page 129)

IV. Programs and Courses Abroad

A. The Salamanca Program at the Universidad de Salamanca

The Salamanca Program is a special inter-disciplinary program of instruction designed to allow Dalhousie students to undertake an intensive study of the Spanish language and courses in Spanish culture. Students must have completed SPAN 2010X/Y.06 with at least a standing of B-. The program takes place during the fall, winter, spring or summer term, and is offered at the Universidad de Salamanca in Salamanca, Spain. Dalhousie University will grant three credits to those students who successfully complete their courses in Spain. Enquiries and applications should be addressed to the coordinator of the Program. Students will register via Letter of Permission and will receive grades on a Pass/Fail basis. The courses will be noted on the student’s academic record as a transfer credit.

Students must take the equivalent of three full courses.

Compulsory courses:
- Lengua española (1.5 credit)
- Students will then select ONE course from each of the following three Options.

Option 1
- Conversación y reducción (5 credit)
- Historia de la España contemporánea (5 credit)

Option 2
- Cultura española (5 credit)
- Historia de la España contemporánea (5 credit)
- Historia de la España contemporánea (5 credit)

Option 3
- Historia del arte español (5 credit)
- Español de los negocios (3 credit)
- Cine español e hispanoamericano (5 credit)
B. The Cuba Program at FLACSO/Havana

This program, designed for students with a minimum of two years’ university-level Spanish, is located at the Universidad Autónoma de Campeche, in the southwest of the Yucatán peninsula, in Mexico. Students must have completed SPAN 2020.06 with at least a standing of B-. Students who have previously studied in Cuba can request a waiver of this requirement. Students will complete their classes in Cuba. The program is offered in the first semester only.

Students who are taking or have taken any language course at Dalhousie do NOT need to take this test.

EXCLUSION: SPAN 1020X/Y.06

SPAN 1200X/Y.06: Spanish for Reading.

This course is given by FLACSO/Havana and generally takes place in the fall term. Students who wish to acquire reading knowledge of Spanish for general academic purposes. Overview of fundamental of Spanish grammar and vocabulary, with emphasis on reading for comprehension of texts in the arts, humanities and social sciences. Students are administered a final exam to assess their ability to read Spanish texts. Students who have completed SPAN 1020X/Y.06 in the fall semester will be placed in SPAN 1025X/Y.06 in the spring semester.

PREREQUISITE: None. Open to students in all departments. No prior knowledge of Spanish is necessary.

C. The Mexico Program at the University of Campeche

This program, designed for students with a minimum of two years’ university-level Spanish, is located at the Universidad Autónoma de Campeche, in the southwest of the Yucatán peninsula, in Mexico. Students must have completed SPAN 3310.06 with at least a standing of B-. Students who have previously studied in Mexico can request a waiver of this requirement. Students will complete their classes in Peru. Students will register via Letter of Permission and stay at Peruvian families’ homes where they will find every amenity they need and Lima and enrich the learning experience of the Spanish language. Students will have a PUCP buddy service to participate in the discussion in the language course. Students will have four visits to the main cultural attractions in Lima to provide the subject of the course better suited to your needs. Students who wish to register for a language course before taking this test may do so, but care should be taken in choosing it. Please read the course descriptions below carefully and try not to underestimate your knowledge.

This test is administered online. Please contact our Academic Advisor (spanish.advising@dal.ca) to register for the test. Scores from this test are normally available within a day, and are considered valid for up to a year from the date it was taken.

Students who are taking or have taken any language course at Dalhousie do NOT need to take this test.

Not all courses are offered every year. Please consult the current timetable.

SPAN 1020X/Y.06: Beginning Spanish.

In SPAN 1020 students will acquire a general knowledge of Spanish by engaging in communicative and task based activities that focus on developing speaking, listening, reading and writing skills. This course follows the A1/A2 levels of the Common European Framework of Reference for Languages (CEFR). Students will gain competence in grammatical structures, vocabulary, pronunciation and cultural awareness.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture 3 hours

SPAN 1025X/Y.06: Advanced Beginning Spanish.

Students with prior knowledge of Spanish will join SPAN 2020 X/Y.06 at midyear for the winter semester only. This course follows the A2 level of the Common European Framework of Reference for Languages (CEFR). Students will gain competence in grammatical structures, vocabulary, pronunciation and cultural awareness.

FORMAT: Discussion, conversation, tutorial, language lab and computer assisted language learning so on.

PREREQUISITE: Knowledge of Spanish to the equivalent of first half of SPAN 1020X/Y.06.

EXCLUSION: SPAN 1020X/Y.06

Unulaual

SPAN 1200X/Y.06: Spanish for Reading.

This course is given by FLACSO/Havana and generally takes place in the fall term. Students who wish to acquire reading knowledge of Spanish for general academic purposes. Overview of fundamental of Spanish grammar and vocabulary, with emphasis on reading for comprehension of texts in the arts, humanities and social sciences. Students do not satisfy the Bachelor of Arts Language Requirement (see SPAN 1020X/Y.06).

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture/discussion, conducted in English

PREREQUISITE: None. Open to students in all departments. No prior knowledge of Spanish is necessary.

SPAN 2020X/Y.06: Intermediate Spanish.

In SPAN 2020 students will acquire an intermediate knowledge of Spanish equivalent to a B1 level, by adopting an action oriented approach and engaging in communicative and task based activities. This course follows the system for learning, teaching and assessing languages established by the Common European Framework of Reference for Languages (CEFR) that defines the competencies the students need to master in the following categories: Comprehension (Listening and Reading) and Expression (Interpretation, Oral and Writing). Students who have completed SPAN 1020 X/Y.06 are eligible for this course.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture 3 hours

PREREQUISITE: SPAN 1025X/Y.06

SPAN 2025X/06: Advanced Intermediate Spanish.

Students whose level of Spanish is higher than the first semester of Span 2020 but lower than Span 3035 will join the Span 2020 class for the second semester. Students will acquire an intermediate knowledge of Spanish equivalent to a B2 level, by adopting an action oriented approach and engaging in communicative and task based activities. This course follows the system for learning, teaching and assessing languages established by the Common European Framework of Reference for Languages (CEFR) that define the competencies the students need to master in the following categories: Comprehension (Listening and Reading) and Expression (Interaction, Oral and Writing).

FORMAT: Lecture 3 hours
SPAN 2030.03: Españo lí Práctico.
The objective of this course is to continue developing the four language skills in a practical setting. This course is required for the Minor in Spanish Language and should be taken in the same academic year as SPAN 2020XY.06. Students planning to take any of our programs abroad or the Diplomas of Spanish as a Foreign Language (DELE)(B1) level will find the course particularly useful.
FORMAT: Lecture 3 hours
PREREQUISITE: SPAN 2020XY.06 or SPAN 2025.03
RESTRICTION: May only be taken after SPAN 2020XY.06 or any Spanish 3000 level language course.

SPAN 2040.03: Spanish for Business.
Spanish for business and institutional trade. Introduction to the Spanish of international business and to the social-cultural norms of negotiation in Spanish-speaking countries.
FORMAT: Lecture/discussion
PREREQUISITE: SPAN 2020.06

SPAN 2069.03: Mexico and Central America to 1979. From Conquest to Revolution.
Events in Central America are frequently covered in our media, causing people to believe that “the unrest” there is recent. This course seeks to examine the historical roots of the conflict from the colonial period until the 1970s. The aim of the course is to provide students with a background knowledge of this area, so that they can better understand current developments there.
FORMAT: Lecture/discussion/conducted in English
PREREQUISITE: No prerequisite. Open to students in all departments. No knowledge of Spanish necessary
CROSS-LISTING: HIST 2382.03

SPAN 2070.03: Mexico and Central America since 1979: The Search for Stability.
Following an examination of the indigenous heritage, and the colonial legacy of the conquistadors, the course deals principally with the contemporary period, especially the Mexican Revolution and its aftermath, the Mexican economy, Mexico under the Sandinistas, the impact of NAFTA, the “democracy” of Mexico, the U.S. role in the region, the human rights situation in Central America, and Central America in the region. The course is designed to provide an understanding of the contemporary reality of this volatile region, in many ways a microcosm of the crucial situation of Latin America as a whole.
FORMAT: Lecture/discussion/conducted in English
PREREQUISITE: No prerequisite. Open to students in all departments. No knowledge of Spanish necessary
CROSS-LISTING: HIST 2383.03

SPAN 2090.03: Introduction to Hispanic Literary Study.
This course will introduce students to literary analysis and critical writing in Spanish. Readings will include works from a variety of periods, genres and languages.
NOTE: Does not fulfill the literature requirement for any Spanish degree program.
FORMAT: Lecture
PREREQUISITE: SPAN 2020XY.06

SPAN 2100.03: Evolving Spain: History, Culture, Society.
This course provides an overview of the major sociopolitical and cultural elements of the Middle Ages to the present, that formed contemporary Spain. 
FORMAT: Lecture/discussion/conducted in English
PREREQUISITE: No prerequisite. Open to students in all departments. No knowledge of Spanish necessary
CROSS-LISTING: HIST 2385.03

SPAN 2105.03: Catalan Language and Culture.
Introduction to Catalan, the Romance language spoken by some 8 million people in northeastern Spain-Iberia and Catalonia - southern France, the Baléaric Islands and Sardinia. Elementary Catalan language and an introduction to Catalan culture.
watching the news. Students will have opportunities for group and class discussions. The aim of the course is to provide students with a general view of the mechanics of translation to then encourage the creative aspects of the process.

FORMAT: Lecture/discussion/conducted in Spanish
PREREQUISITE: SPAN 3035.03 or equivalent

SPAN 3090.03: Spanish Phonetics and Pronunciation.

This course seeks to introduce students to the analysis of the sound system of Spanish. Students will learn to identify and adjust non-native patterns of pronunciation through contrastive analysis, transcriptions and pronunciation practice. Students will master basic concepts and techniques of phonetic analysis and the general phonological characterization of Spanish dialects. The course will focus on the attributes of Spanish sounds, differences between the English and the Spanish sound systems, and the main differences among varieties of Spanish.

FORMAT: Lecture/discussion/conducted in Spanish
PREREQUISITE: SPAN 2090.03

SPAN 3095.03: Evolution of Spanish.

This course offers a panoramic study of the evolution of spoken Latin into modern Spanish (no prior knowledge of Latin required). Topics covered will include the major historical events that influenced the evolution of Spanish: phonological change; morphological and cometic change; lexical borrowings from other languages; and semantic change.

FORMAT: Lecture/discussion/conducted in Spanish
PREREQUISITE: SPAN 2090.03

SPAN 3190.03: Conversation & Expression.

This course is conducted in Spanish and engages students in conversation in a variety of formats toward the goal of further developing oral proficiency. We will aim to improve oral expression, conversion, and listening comprehension. Short essays or videos on topics of current interest are prepared outside of class and serve as the basis for general class discussions. Although the course deals mostly with conversation, many of the exercises will be directed toward oral practice of both structures and topics learned in the previous courses. Activities include improvisations and focus on small group and pair work as well as individual production of language. The emphasis will be on practical use of oral skills and build vocabulary through practice in different types of discourse, including narration, description, critical commentary, debate, role play, listening to music, reading newspapers and watching the news.

FORMAT: Seminar/Discussion
PREREQUISITE: SPAN 3035.03

SPAN 3215.03: Seminario de literatura latinoamericana.

This course examines the evolution of the Cuban development model, from the Conquest and colonization by the Spanish to the reforms of the early 21st Century. The objective is to develop an understanding of the various development strategies employed by Cuba, particularly since the revolution of 1959. When asked about the Cuban development model, most people nowadays would say "socialism." Thirty years ago it was sugar--as it had been from the beginning if the 16th Century. In fact Cuba obtains most of its hard currency from medical-related services—mainly from the exportation of medical services, but also from the sale of sophisticated biotechnological products. Cuba's approach has evolved dramatically in the last two decades, and particular attention will be paid to this period.

FORMAT: Lecture and discussion
CROSS-LISTING: INTD 3408.03

SPAN 3500.03: Historia e historias: la literatura como crítica de la historia. This is a panoramic course that studies Latin American literature from the "boom" to the present. It is divided into five sections, each of which will focus on a literary genre: short stories, essays, journalism, theatre and novels.

FORMAT: Lecture/discussion/conducted in Spanish
PREREQUISITE: SPAN 3035.03

SPAN 3520.03: Topics in Culture & Identity in the Spanish-Speaking World.

This course is designed for advanced students who have taken the available courses at the 2000 level or equivalent. During this course students will explore representative periods and authors, spanning from pre-Colombian times to the twentieth century.

FORMAT: Lecture/discussion/conducted in Spanish
PREREQUISITE: SPAN 2090.03
EXCLUSION: SPAN 2510.03

SPAN 3525.03: Traducción: Inglés-Español.

The objective of this course is to develop basic translation skills through the practice of translating English texts into Spanish. The approach would be methodological and practical: theoretical issues will be discussed to solve translation problems. After establishing the fundamental concepts, the course will progress to examine a series of important aspects of translation: cultural transposition, poetic and prosodic problems, grammatical and lexical issues, language variety in texts, etc. Each aspect outlined will have a practical component in which students will give a concrete translation task to solve. Group and class discussions will follow.

FORMAT: Lecture/discussion/conducted in Spanish
PREREQUISITE: SPAN 2090.03

SPAN 3310.06: Cuban Culture and Society.

This course is designed for advanced students who have taken the available courses at the 2000 level or equivalent. During this course students will explore representative periods and authors, spanning from pre-Colombian times to the twentieth century.

FORMAT: Lecture/discussion/conducted in Spanish
PREREQUISITE: SPAN 2090.03

SPAN 3408.03: The Cuban Development Model.

This course examines the evolution of the Cuban development model, from the Conquest and colonization by the Spanish to the reforms of the early 21st Century. The objective is to develop an understanding of the various development strategies employed by Cuba, particularly since the revolution of 1959. When asked about the Cuban development model, most people nowadays would say "socialism." Thirty years ago it was sugar--as it had been from the beginning if the 16th Century. In fact Cuba obtains most of its hard currency from medical-related services—mainly from the exportation of medical services, but also from the sale of sophisticated biotechnological products. Cuba's approach has evolved dramatically in the last two decades, and particular attention will be paid to this period.

FORMAT: Lecture and discussion
CROSS-LISTING: INTD 3408.03

SPAN 3530.03: Literatura hispanoamericana contemporánea.

This is a panoramic course that studies Latin American literature from the "boom" to the present. It is divided into five sections, each of which will focus on a literary genre: short stories, essays, journalism, theatre and novels.

FORMAT: Lecture/discussion/conducted in Spanish
PREREQUISITE: SPAN 3035.03
SPAN 3905.06: Estudios hispánicos avanzados.
This course offers the student an opportunity to study aspects of Hispanic culture not already included in other language offerings or in literature courses more narrowly defined by period, genre, etc. It takes advantage of special research interest of staff or the unique expertise of visiting faculty to provide instruction not regularly available here.

FORMAT: Lecture/conducted in Spanish

SPAN 3920.03: Experiential Learning.
Experiential learning combines formal learning with practical experience using the Spanish language. Students are required to volunteer/intern for a minimum of 60 hours over the term, or approximately 4-5 hours per week. Students will also compile a portfolio under the supervision of the course instructor, to include relevant readings and assignments (these may include reading responses, reports, presentations, essays).

FORMAT: Discussion, conducted in Spanish
PREREQUISITE: SPAN 2020.06

SPAN 3970.03: Lecturas dirigidas de literatura Hispanoamericana.
SPAN 3975.03: Estudios hispánicos dirigidos.
SPAN 3980.03: Lecturas para especialistas.
SPAN 4985.03: Lecturas para estudiantes de honores.
SPAN 4990.03: Honours Reading.
Faculty of Computer Science

Address: Goldring Computer Science Building
6500 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2093
Fax: (902) 494-1517
Website: http://www.cs.dal.ca

Dean
Shepherd, M., MSc, PhD (Western)

Associate Deans
Milios, E. E., Dipl Eng (National Technical University), SM&EE, PhD (MIT)
Riordan, D., BSc, MSc (Port Elizabeth), PhD (Carleton)

Faculty Administrator
Publicover, A., BSc, BA (Dalhousie) Telephone: (902) 494-1199

Administrative Assistant—Undergraduate
Belivan, A., Telephone: (902) 494-2740

I. Introduction

Computer Science is a fundamental multi-disciplinary, high-technology discipline. Computer Science forms an integral and indispensable part of higher education. The Faculty of Computer Science provides high-quality education to our students in all areas of Computer Science and Informatics and conducts excellent research in specific areas of Computer Science, emphasizing major research programs with the support and participation of Industry and Government.

Our modern award-winning Computer Science building and state-of-the-art equipment permit Computer Science to conduct primary research in Algorithms, Bioinformatics, Data Mining, Health Informatics, Human Computer Interaction, Information Retrieval, Network Centred Computing, Privacy and Security and Visualization.

The Faculty of Computer Science was formed on April 1, 1997, following the amalgamation of the Technical University of Nova Scotia (TUNS) and Dalhousie University. Its members came from the School of Computer Science at TUNS and the Computing Science Division of the Department of Mathematics, Statistics, and Computing Science at Dalhousie.

Significant growth has occurred in our formative early years. Our graduate and undergraduate programs include imaginative multi-disciplinary programs such as Electronic Commerce, Health Informatics, and Bioinformatics. The most up-to-date information on ongoing programs, ongoing curriculum revision, and general information about the Faculty can be found on our website: http://www.cs.dal.ca.

II. Academic Regulations

In addition to the regulations below, please see the Academic Regulations section of the calendar.

Workload
A normal course load is five courses during each study term.

Course Selection
The content of every course that students take to meet degree requirements must represent new material: students may not take courses whose content is largely repetitive of, or more elementary than, a course taken earlier on the same topic, without permission of the Faculty.

Of the 40 half-credits required to complete any CS undergraduate degree, at least 20 must be taken from Dalhousie University.

Computer courses in other departments
Computer courses offered by other departments (e.g., COMM 1502.03, MGMT 1601.03) cannot be taken for credit in the Faculty’s degree programs without explicit permission of the Faculty of Computer Science.

Grades
a. Course instructors will describe methods of student evaluation during the first week of each course.
b. Supplementary examinations are not given in Computer Science courses.
c. A grade of at least C- is required for a course to satisfy a prerequisite condition for a CSCI/INFX course.
d. A grade of at least C- is required in all Computer Science CSCI/INFX core courses to graduate with any Computer Science degree.

Dismissal
A student who meets the conditions for dismissal as outlined in Section 20, Academic Dismissal, of the Academic Regulations will be dismissed from the program. A student who fails more than one co-op work term will be dismissed from the co-op program.

An application for readmission to the program may be considered two terms after dismissal. A student who has been dismissed and who has been required to withdraw from the university for one term or more may be readmitted to a program in the Faculty of Computer Science only once. A readmitted student is considered to be on probation.
Adjunct Assistant Professors
Abdel, S., MEng (Dorost, MSc (Dublin), PhD (Dublin)
Bandoli, T., BSc (Queen’s), MSc (Dalhousie), PhD (Toronto)
Lucic, V., BEng (Nj), MSc, PhD (Waterloo)
Marchand, Y., MSc (Pars, D.E.A. (Can), PhD (Compiègne)
McIntyre, A., BSc (McGill), PhD (Dalhousie)
Song, X., BSc (Tsinghua), MSc (Chinese Academy of Science), PhD (UNE), MCS (Dalhousie)
Vauxin, P., IIBA, MA (Guelph), MD (McMaster), MPhil (Johns Hopkins)
Wilson, G., BA, MSc, PhD (Dalhousie)
Yu, Q., BSc, MEng (Harbin), PhD (Albem)

Senior Instructor
Brookly, A., BMath (Waterloo), MSc, PhD (UBC)
Kalynovitch, N., BSc (Bournemouth), MSc, PhD (Rennes)

Instructor
Flaming, J., BComm, BA (SMU), MA (Dalhousie)

I. General Interest Courses
The Faculty offers eight courses that should be of interest to students whose major field of study while at Dalhousie will not be Computer Science.

CSCI 1106.03: Animated Computing.
This course is a hands-on introduction to two areas of computing: robotics and game design. Students will learn how to program simple robots and will use empirical methods to investigate various aspects of robotics, such as sensors and actuators, uncertainty, knowledge representation, and failure detection and recovery. Students will also learn how to design and develop simple games and will investigate aspects of game design, such as collision detection and game-play behavior. Students will use empirical methods to investigate the gameplay-centric aspects of game design. Students work in groups to complete small robotics and game design projects.

CSCI 1107.03: Social Computing.
A hands-on course on technologies and the underlying infrastructure for social computing, including digital collaboration media, social network visualization, and social software. Students will learn about social media, computer networks and web services that facilitate their execution.

CSCI 1200.03: Introduction to Computing for Non-Majors.
This is a course of technical computer literacy. Students can expect to learn about computers in a general way and how computers affect the way we live and work. Students will be given an opportunity to become familiar with typical applications software such as word processors, spreadsheets and database applications. Other topics will include the use of the internet, creation of web pages, and simple programming concepts. No previous computer experience is required. This course is open to Arts and Social Sciences and Health Education students only. NOTE: This course cannot be counted towards the Bachelor of Commerce or a Minor in Business.

CROSS-LISTING: ASSC 1003

INFX 1606.03: Introduction to Web site creation.
This course introduces students to key web concepts and skills for creating and maintaining websites. This course is intended for students with no formal computer training. Topics include introduction to the Web, hypermedia markup languages such as HTML, style sheets, client side programming, multimedia foundations, dynamic content and website organization and maintenance.
CROSS-LISTING: CSCI 1206.03
EXCLUSION: INFX 1605.18

INFX 1615.03: Concepts of Computing.
This course introduces some key concepts in computing and places them in context with a survey of applications. The skills developed in this course include research, reduction, problem solving and abstraction. The themes covered are the following: Data and storage, operating systems, networking and the Internet, database systems, artificial intelligence and computer graphics. This course is eligible to partially cover the writing requirement for students in the Bachelor of Computer Science, Bachelor of Informatics and Bachelor of Science, Computer Science.
II. Degree Programs

A. Academic Regulations
For all variations of the Bachelor of Computer Science degree:
- of the 19 half-credit CSCI courses required at all levels, at least 10 must be chosen from Dalhousie CSCI course offerings, and
- of the 11 half-credit CSCI courses required at the 3000 and 4000 level, at least six must be chosen from Dalhousie CSCI course offerings.

B. Bachelor of Computer Science

1. Bachelor of Computer Science

The following regulations apply to students starting the program in September 2010 or after.

Faculty Requirements

3000 Level
- CSCI 3100.03: Communication Skills: Oral and Written
- CSCI 2110.03: Computer Science III
- CSCI 2121.03: Computer Organization with Assembly Language
- CSCI 2122.03: Software Development
- CSCI 2141.03: Introduction to Database Systems

2000 Level
- CSCI 1100.03: Computer Science I
- CSCI 2112.03: Computer Organization with Assembly Language
- CSCI 2113.03: Discrete Structures II

1900 Level Courses
- MATH 1000.03: Differential and Integral Calculus I
- MATH 1010.03: Differential and Integral Calculus II or CSCI 2133.03 Discrete Structures II
- MATH 2010.03: Matrix Theory and Linear Algebra I
- STAT 2003.03: Introduction to Probability and Statistics I

One full credit or two half credits of a science course with a list from a list provided by the Faculty of Computer Science

One full credit to satisfy the writing requirement

One full credit course in humanities or social science at or above the 1000 level

Two full credit courses, or one full credit in business, science, or engineering at or above the 1000 level

One half credit course in business, science or engineering at or above the 2000 level

Two half credit electives of computer science at or above the 3000 level

Three half-credit electives of computer science at or above the 4000 level

Two free half-credit electives at or above the 1000 level

Seven free half-credit electives at or above the 2000 level

2. Bachelor of Computer Science Honours

The purpose of the Honours program is to provide a more challenging degree program for graduate school. The program provides greater rigor and more analytic content than the Bachelor of Computer Science degree.

To enter the Honours program a student must consult with the Honours Faculty Advisor and obtain the approval of the Faculty of Computer Science.

Each computer science course at or above the 3000 level must be passed with a grade of at least 2.0 (C). The cumulative GPA across all courses must be at least 3.0 (B).

The Honours program may be combined with co-op education.

Faculty Requirements

In addition to the normal requirements of the Bachelor of Computer Science degree, course selection must include six courses chosen as follows:
- five half-credit courses of computer science at or above the 4000 level chosen in consultation with the thesis supervisor to ensure that the student has the appropriate background
- CSCI 8873.03 (i.e., successfully complete and present an Honours Thesis)

Students must meet these requirements and who obtain a GPA of 3.7 (A-) or higher in all computer science courses will receive the degree Bachelor of Computer Science with First Class Honours.

3. Minors for the Bachelor of Computer Science

Honours students in the Bachelor of Computer Science program may add a Minor in many subjects from the Faculties of Arts and Social Sciences, Management, Science and the College of Sustainability. Available minors are listed in the College of Arts and Sciences section of the undergraduate calendar.

Students are seeking the requirements for a minor should consult the corresponding department's section of the undergraduate calendar. The minor requirements are in addition to the normal Bachelor of Computer Science requirements. Students wishing to pursue a minor should consult their relevant department and a Faculty of Computer Science academic advisor.

4. Co-operative Education Programs

All programs in Computer Science have a Co-operative Education option. This requires the completion of three Co-op work terms.

The Co-op office receives requests from employers for Co-op placements and advertises these to qualifying students. Students apply for these positions and are interviewed by the employer.

Students interested in the Co-op program should apply to register for CSCI 8890.00 in their second year.

5. Specializations

The following specializations have been approved for the following Bachelor of Computer Science programs: BESC, BESC Co-op, BESC Honours, BESC Honours with Co-op, BESC Honours Conversion, BESC Honours Conversion with Co-op:
- Graphics, Gaming, and Media
- Artificial Intelligence and Intelligent Systems
- Communication Technologies and Cyber Security
- Data Science

The specializations have the following requirements:
- Graphics, Gaming, and Media specialization requires a student to take three compulsory and two electives from a list of elective courses. Required courses are:
  - CSCI 3161: Introduction to Computer Graphics with Animation
  - CSCI 3162: Digital Media
  - CSCI 4166: Game Design and Development

Elective courses are:
  - CSCI 3154: AI and Games
  - CSCI 4166: Computer Graphics
  - CSCI 4166: Visualisation
  - CSCI 4167: Advanced Computer Animation

Artificial Intelligence and Intelligent Systems specialization requires a student to take two compulsory and two electives at the fourth year level from a list of elective courses. Required courses are:
  - CSCI 3151: Web Intelligence
  - CSCI 3154: AI with Gaming Applications

Elective courses are:
  - CSCI 4141: Information Retrieval
• CSCI 4144: Data Mining and Data Warehousing
• CSCI 4152: Natural Language Processing
• CSCI 4155: Machine Learning with Robots

Communication Technologies and Cyber Security: specialisation requires a student to take two required courses and three electives from a set of elective courses. Required courses are:
• CSCI 3120: Operating Systems
• CSCI 3171: Network Computing

Elective courses are:
• CSCI 3172: Web-Centric Computing
• CSCI 4116: Cryptography
• CSCI 4171: Networks and Communications
• CSCI 4174: Network Security
• CSCI 4176: Mobile Computing

Data Science specialisation requires a student to take three compulsory courses and three electives from a list of elective courses. Required courses are:
• CSCI 4146: The Process of Data Science
• CSCI 4148: Visual Computing
• One of CSCI 3151 Web Intelligence or CSCI 4125 High Performance Computing

Elective courses are:
• Either CSCI 3151 Web Intelligence or CSCI 4125 High Performance Computing, not taken as a required course
• CSCI 3154 Introduction to Artificial Intelligence with Gaming Applications
• CSCI 4140 Information Retrieval
• CSCI 4144 Introduction to Data Mining and Data Warehousing
• CSCI 4152 Natural Language Processing
• CSCI 4155 Machine Learning with Robotics
• CSCI 4165 Visualization
• STAT 2000 Statistical methods for Data Analysis and Inference
• STAT 3140 Regression and Analysis of Variance

Degree Requirements and Specialization Requirements

Note that to obtain a degree, the degree requirements must be satisfied. To obtain a specialization certificate, requirements for the specialization, in addition to the degree requirements, must be satisfied. Students need to contact the Undergraduate Administrator to request a certificate and a note on their transcript. Additional information on the specializations is available at http://www.cs.dal.ca/undergraduate specialization.

6. Entry Points to Bachelor of Computer Science

There are multiple entry points into the Bachelor of Computer Science program. First-Year Entry: Students are advised to apply directly to the Faculty of Computer Science but may take their courses within the BSc first year and transfer to Computer Science at the beginning of their second year.

Students who wish to transfer to the Bachelor of Computer Science program from other disciplines may be able to do so, but will have to make up any required courses that are missing. See also the Academic Regulations section for the Faculty of Computer Science on page 37.

7. Accreditation and the Profession

Of particular importance to the Faculty is the accreditation of the undergraduate program by the Computer Science Accreditation Council (CSAC), which is responsible for accreditation of computer science programs in Canada. Accreditation provides our graduates with an accelerated path towards achieving the professional designation of Information Systems Professional of Canada (IS.P.).

The Bachelor of Computer Science, Bachelor of Computer Science with Co-op, Bachelor of Computer Science with Honours, and Bachelor of Computer Science with Honours and Co-op are accredited by CSAC.

The co-operative program offers work terms to our students, thus providing an additional link between the Faculty and the Profession.

C. Bachelor of Science and Bachelor of Arts with Computer Science

1. Bachelor of Science Major in Computer Science

The Faculty of Computer Science offers a Bachelor of Science degree with a Major in Computer Science. The program of studies is similar to the Bachelor of Computer Science, but with more flexibility in selection of elective courses. The program may be of benefit for students who want to use it as a basis to enter other professional programs such as Education, Medicine, or Law. However, unlike the Bachelor of Computer Science degree, it does not meet CSAC accreditation requirements. Students interested in this degree option will find further information on the Faculty website at http://www.cs.dal.ca and should consult with a Faculty advisor.

2. Double Majors and Combined Honours

The following degree programs are available to students interested in interdisciplinary studies where the larger number of majors credits in Computer Science: Bachelor of Science (20 credit) with Double Major, Bachelor of Science (20 credit) with Combined Honours, Bachelor of Arts (20 credit) Double Major and Bachelor of Arts (20 credit) Combined Honours.

Combined Honours

Students interested in taking honours in Computer Science and another subject as a combined program should consult the honours advisor and have suitable courses arranged.

A combined honours program may well be an appropriate choice for many students. If a student is contemplating graduate work, it should be borne in mind that the work in either subject of a combined honours program may be insufficient for entry to a regular graduate program and that a qualifying year may be necessary.

Students who wish to arrange interdisciplinary programs (with fields such as Mathematics, Physics, Psychology, and others) are invited to discuss their interests with the appropriate department and the Undergraduate Chair of the Faculty of Computer Science.

D. Scholarships

Scholarships and bursaries are available to both new and returning students. See the Awards and Financial Aid section of this calendar.

E. Minor in Computer Science for Non-Computer Science Major BSc

The Minor in Computer Science is available to students registered in the BSc 20 credit major and honours programs offered by the Faculty of Science. The requirements are as for the appropriate program with the completion of the following courses to fulfill the Computer Science Minor:
• CSCI 1100.03
• CSCI 1101.03
• CSCI 2100.03
• CSCI 2101.03
• CSCI 3120.03
• CSCI 3130.03 and CSCI 3136.03

Combined Honours

(20 credit) with Combined Honours, Bachelor of Arts (20 credit) Double Major and Bachelor of Arts (20 credit) Combined Honours.

III. Course Descriptions

CSCI 1100.03: Computer Science I.

This course provides a general introduction to computer science and the hardware and software of computers. The main focus is on programming skills and how to apply these skills in solving a variety of problems. Algorithmic concepts are included.

PREREQUISITE: Nova Scotia PreCalculus or Calculus Math or equivalent

EXCLUSION: CSCI 1202.03

CSCI 1101.03: Computer Science II.

This course is a continuation of CSCI 1100.03. It focuses on programming and linear data structures. PREREQUISITE: CSCI 1100.03 or INFX 1600.03 or INFX 1604.03
Majors.

CSCI 1106.03: Animated Computing.
This course provides an introduction to the areas of computing: robotics and game design. Students will learn how to program simple robots and will use empirical methods to investigate various aspects of robotics, such as sensors and actuators, uncertainty, knowledge representation, and failure detection and recovery. Students will also learn how to design and develop simple games and will investigate aspects of game design, such as event-driven frameworks and collision detection. Students will use empirical methods to investigate the physics-centric aspects of game design. Students work in groups to complete small robotics and game design projects.

CSCI 1107.03: Social Computing.
A hands-on course on technologies and the underlying infrastructure for social computing, including digital collaboration media, social networks and visualization, and their social impact. Students will use various applications, such as Twitter, Yik Yak, and wikis to examine their functionalities, and explore infrastructure technologies including databases, computer networks and Web-servers that facilitate their execution.

CSCI 1200.03: Introduction to Computing for Non-Majors.
This is a course of technical computer literacy. Students can expect to learn about computers in a general way and how computers affect the way we live and work. Students will be given an opportunity to become familiar with typical applications of software such as word processors, spreadsheets and database applications. Other topics will include the use of the internet, creation of web pages, and simple programming concepts. No previous computer experience is required. This course is open to Arts and Social Sciences and Health Education students only. NOTE: This course cannot be counted towards the Bachelor of Commerce or a Minor in Business.

CROSS-LISTING: ASCI 1000.03

CSCI 2100.03: Communication Skills: Oral and Written.
The course is designed to help students become more successful communicators by examining the communication process from both a theoretical and practical viewpoint. It teaches students to formulate sound arguments as well as to present persuasive arguments. In examining their audience and to deliver accurate, effective messages. Written assignments and oral presentation will enable students to apply the skills they have learned in class as well as to develop a useful set of practical tools that will allow them to communicate effectively and with confidence in a variety of settings.
PREREQUISITE: It is recommended that students have completed their Writing Requirement.
CROSS-LISTING: ENGL 2100.03
EXCLUSION: COMM 2701.03, COMM 1701.03, COMM 1702.03, MGMT 3602.03

CSCI 2110.03: Computer Science III.
This course provides a comprehensive introduction to data structures and algorithms, including their design, analysis, and implementation. In discussing design and analysis there is a strong emphasis on abstraction. In discussing implementations, general approaches that are applicable in a wide range of programming languages are emphasized, in addition to a focus on the details of implementations. Topics include an introduction to asymptotic analysis and a review of basic data structures (stacks, queues, lists, vectors), trees, priority queues, dictionaries, hashing, search trees, sorting (MergeSort, QuickSort, RadixSort) and sorts, and graphs (traversals, spanning trees, shortest paths).
PREREQUISITE: CSCI 1101.03

CSCI 2112.03: Discrete Structures I.
See the course description for MATH 2112.03 in the Mathematics section of this calendar.
CROSS-LISTING: MATH 2112.03

CSCI 2113.03: Discrete Structures II.
See the course description for MATH 2113.03 in the Mathematics section of this calendar.
CROSS-LISTING: MATH 2113.03

CSCI 2121.03: Computer Organization with Assembly
Language.
This course deals with the fundamentals of computer organization; assembly language is used as an aid to studying computer organization. Topics include digital logic, ALU and CPU design, object code, microprogramming, CISC, RISC, and parallel computers.
PREREQUISITE: CSCI 1101.03
CO-REQUISITE: CSCI 2112.03 and CSCI 2132.03

CSCI 2123.02: Software Development.
This course presents techniques for programming and software development in a procedural language. It reviews the basics of procedural programming and introduces students to source code management, testing strategies, debugging, and basic scripting techniques.
PREREQUISITE: CSCI 1102.03 or suitable prior programming experience.

CSCI 2141.03: Introduction to Database Systems.
The course introduces students to the concepts of database management systems and database design. Topics include: Database (DB) components, DB design using entity-relationship (relational and object oriented), SQL, and transactional properties and techniques to support them. The concepts will be reinforced using one or more Database Management Systems.
PREREQUISITE: CSCI 1108.03
CROSS-LISTING: INF/CS 2640.03
EXCLUSION: CSCI 2140.03

CSCI 3101.03: Social, Ethical and Professional Issues
in Computer Science.
Computers can enable people to do things that our present laws and policies were not formulated to cover (hacking, sharing data on the internet, and computers sharing data). In such cases, people need to be able to decide for themselves the best course of action, and explain their decision. This course aims at developing the ethical reasoning skills and sensitivities that computer professionals will need to make good decisions and to justify them. The course includes a general introduction to ethical theories and their use in making and justifying decisions. We then consider various issues and case studies, illustrating the kinds of problems that can arise from the use and misuse of computers and technology; the responsibilities of computing professionals; ethics on the internet (hacking, computer crime, netiquette); privacy and information; intellectual property; social and political issues (digital divide, computers and work, the internet as a democratic technology).
CROSS-LISTING: PHIL 2460.03

CSCI 3110.03: Design and Analysis of Algorithms I.
This course covers techniques for the design and analysis of efficient algorithms and data structures. Topics include asymptotic analysis, divide and conquer algorithms, greedy algorithms, dynamic programming, data structure design, optimization algorithms, and amortized analysis. The techniques are applied to problems such as sorting, searching, identifying graph structure, and manipulating sets.
PREREQUISITE: CSCI 2110.03 and CSCI 2112.03
CROSS-LISTING: MATH 3170.03
EXCLUSION: CSCI 3110.03

CSCI 3111.03: Introduction to Numerical Linear
Algebra.
Floating-point arithmetic. Numerical solution of linear systems of equations. Gauss elimination methods and iterative methods; condition number of problems and of algorithms; estimation of condition numbers. Numerical calculation of eigenvalues; QR and LR algorithms; singular value decomposition; Gram Schmid orthogonalization. Use is made of program libraries such as Linpack, Eisspack and Matlab.
PREREQUISITE: MATH 2301.03 and CSCI 1101.03
CROSS-LISTING: MATH 3170.03

CSCI 3120.03: Operating Systems.
The course is an introduction to modern operating systems. Topics include dynamic process activation, system structure and evaluation, memory management, process management, process scheduling, recovery procedures, concurrency, deadlocks, resource allocation, protection, and operating systems implementation.
PREREQUISITE: CSCI 2110.03, CSCI 2121.03, and CSCI 2132.03
CSCI 3121.03: Computer Systems Architecture. The primary objective of this course is to give a comprehensive understanding of the structure and function of a computer system from an architecture and implementation viewpoint. The course focuses on the design of the processor, memory systems, input/output systems, networking, and operating systems. The course also provides students with a basic understanding of the role of computer architecture in the design of computer systems. PREREQUISITE: CSCI 2120.03 EXCLUSION: ECS 3020.03

CSCI 3130.03: Introduction to Software Engineering. This course examines the process of software development, from initial planning through implementation and maintenance. A brief survey of available tools and techniques will be presented. The course will focus on the topics of analysis, planning, estimating, project management, design, testing, and evaluation. This course will emphasize the role of software engineering in the development process. PREREQUISITE: CSCI 2106.03, CSCI 2132.03, or INFX 3600.03 CROSS-LISTING: INFX 3600.03

CSCI 3132.03: Object Orientation and Generic Programming. This course covers the fundamental concepts of object-oriented programming: behavior, inheritance, encapsulation, and polymorphism. There is a discussion of the history of object-oriented programming, and introduction to some currently used object-oriented programming languages. PREREQUISITE: CSCI 2108.03 and CSCI 2132.03

CSCI 3136.03: Principles of Programming Languages. This course provides a comparative study of advanced programming languages and features. Topics include statement types, data types, variable binding, and parameter passing mechanisms. Formal methods for syntax and semantic description of programming languages are examined. PREREQUISITE: CSCI 2108.03 and CSCI 2132.03

CSCI 3151.03: Web Intelligence. The Web and on-line digital libraries constitute the largest repository of interconnected local knowledge ever created. Search engines have made this knowledge accessible to the lay person. Social networks further enhance the exchange of knowledge among individual Web users. Mining the Web and associated digital libraries is the next challenge that promises to change the nature of scientific discovery, and to dramatically impact the way business is conducted. This course will focus on core Artificial Intelligence concepts and algorithms in the context of Web and text mining: machine learning, natural language processing, semantic web, social networks, and Web mining. PREREQUISITE: CSCI 2122.03, CSCI 2141.03, and STAT 2600.03 and MATH 2010.03

CSCI 3154.03: Introduction to Artificial Intelligence with Gaming Application. This course covers the breadth of Artificial Intelligence techniques and as such is divided into roughly two parts: Symbolic AI and Machine Learning. Throughout the course the problem of decision making for Non-Play Characters in computer games will form the case study and application examples used to illustrate the AI techniques studied. Symbolic AI will cover First-order Logic, Forward/Backward chaining, Rule-based systems, and Fuzzy Logic. The relative trade-offs in the application of such architectures to NPC decision making will be developed. The role of Learning systems in Goal-oriented decision making will also be introduced; where this also make use of search based problem solving and the A* algorithm. Search and its utility in evaluation of next move in turn-wise games will also be specifically investigated as well its introduction to Bayesian Decision making will be made, where this leads to causal reasoning and adaptation. The second half of the course will introduce Machine Learning from the basic design decisions of Representation, Credit assignment and Cost Function. Two paradigms will be investigated in particular: - Gradient descent Neural Networks and Evolutionary computation - where these illustrate the relative trade-offs implicit in the three ML design decisions. Case studies and laboratories illustrating these properties include learning to play checkers, recognizing Poker hands, learning NPC behaviors through evolution. PREREQUISITE: CSCI 2108.03, CSCI 2132.03, and CSCI 2132.05 EXCLUSION: CSCI 4684.03

CSCI 3160.03: Designing User Interfaces. This course covers the concepts and techniques underlying the design of interfaces for computer systems. Both human factors and the technical methods of user interface design are covered. Students will learn how to apply various techniques through the design, creation, and testing of a prototype system. PREREQUISITE: CSCI 2125.03 or INFX 2616.03 or INFX 2620.03 CO-REQUISITE: CSCI 2140.03 or CSCI 2141.03

CSCI 3161.03: Computer Animation. This course introduces students to higher-level computer animation programming. Through the development of a significant project using industry standard graphics libraries, students will learn proven techniques that have become common currency in the field of computer animation. PREREQUISITE: CSCI 2108.03, CSCI 2132.03 and MATH 2010.03

CSCI 3162.03: Digital Media. This course covers technical aspects of digital media, including images, videos, and sound. Topics covered include digital representation, compression, decomposition, and multimedia generation. PREREQUISITE: MATH 1000.03, MATH 2010.03, CSCI 2110.03 EXCLUSION: CSCI 4164.03

CSCI 3171.03: Network Computing. This course gives students a foundation in computer networks. It presents a top-down view of the layered architectural elements of communication systems, focusing on the Internet and TCP/IP. Topics include client/server systems, packet switching, protocol stacks, queuing theory, application protocols, socket programming, remote service calls, reliable transport, UDP, TCP, and security. PREREQUISITE: CSCI 2108.03, CSCI 2132.03 and STAT 2600.03

CSCI 3172.03: Web-Centric Computing. This course provides a solid grasp of core WWW technologies and a conceptual framework for understanding the development of the WWW and its applications. The course explores interactive and non-interactive applications with a special emphasis on content management systems, e-commerce, and e-commerce applications. PREREQUISITE: CSCI 2140.03 or CSCI 2141.03) and CSCI 3117, or INFX 2601.03 and INFX 2601.03

CSCI 3190.03: Community Outreach. This is a project-oriented course where the result of the project is a real-world implementation that meets the requirements of a community group such as a charity, non-profit organization, or educational institution. Students work in teams on the entire application development life cycle from requirements analysis through to maintenance. A library of course-related project requirements and guidelines will be provided. The course also provides students with the opportunity to apply requirements analysis, systems design, and database design methodologies in a real-world context. CO-REQUISITE: CSCI 3171.03 may be taken as a co-requisite

CSCI 3191.03: Community Outreach II. This course provides an overview of current research in the area of computer science, focusing on the development of new technologies and their impact on society. Students will work on projects related to real-world applications. PREREQUISITE: CSCI 2108.03, CSCI 2132.03, and (CSCI 3190.03 or CSCI 2141.03)

CSCI 4112.03: Theory of Computation. This is a course on formal languages and computational models. Topics covered include finite automata, pushdown automata, Turing machines, undecidability and recursively enumerable languages. Some applications to computer science are also discussed such as compiler design and text processing. PREREQUISITE: CSCI 2125.03 and CSCI 3186.03 CROSS-LISTING: MATH 4686.03

CSCI 4113.03: Design and Analysis of Algorithms II. This course covers advanced algorithms and their applications. Students will learn how to analyze various algorithms through the design, creation, and testing of a prototype system. PREREQUISITE: CSCI 2125.03 or INFX 2616.03 or INFX 2620.03
### 332 Computer Science

**CSCI 4114.03: Formal Aspects of Software Engineering.**

This course deals with formal specifications of software, techniques for verification of computer programs and software testing.

**PREREQUISITE:** CSCI 3100.03

**CROSS-LISTING:** MATH 4130.03

---

**CSCI 4115.03: Topics in Graph Theory.**

See the course description for MATH 4150 in the Mathematics section of this calendar.

**PREREQUISITE:** See Mathematics section

**CROSS-LISTING:** MATH 4150.03

---

**CSCI 4116.03: Cryptography.**

See the course description for MATH 4160 in the Mathematics section of this calendar.

**PREREQUISITE:** See Mathematics section

**CROSS-LISTING:** MATH 4161.03

---

**CSCI 4117.03: Advanced Data Structures.**

Data structures play a central role in many modern applications, and are essential building blocks of efficient algorithms. This course covers classical results and recent advances on data structures. Topics covered include the (O(log n) bound in sorting and searching, online optimization of search structures, fast text retrieval, space efficient data structures for large data sets, and persistent data structures.

**PREREQUISITE:** CSCI 3100.03

---

**CSCI 4121.03: Advanced Computer Architecture.**

This course will focus on the basic principles of computer architecture with an emphasis on quantitative analysis of the effect of architectural design decisions on system performance and the price-performance trade-offs necessary in real computer designs. This includes instruction set design issues (CISC vs. RISC), instruction level parallelism, implementation methods, pipelining, pipeline hazards, interrupts, the relationship with compiler technology, and memory system design. Several representative architectures will be used as examples, with emphasis on modern RISC processors.

**PREREQUISITE:** CSCI 3121.03

---

**CSCI 4122.03: Software Design Methods for Real Time Systems.**

This course will include the following topics: real-time executive, architectures for real time systems, design methods, concurrency and synchronization, resource allocation, error handling and safety issues.

**PREREQUISITE:** The CSCI 3120.03, CSCI 3110.03 and permission of the instructor

---

**CSCI 4125.03: High Performance Computing.**

This course explores the design, implementation, and evaluation of computer programs for applications in which performance is a central issue. In the sequential computing setting, it explores topics such as profiling, cache effects, I/O performance, floating-point issues, compiler directives and performance tuning. In the parallel computing setting, it explores topics such as profiling, cache effects, I/O performance, floating-point issues, compiler directives and performance tuning.

**PREREQUISITE:** CSCI 3120.03, CSCI 3130.03 and permission of the instructor

---

**CSCI 4126.03: Ubiquitous Computing.**

Ubiquitous Computing moves computing off the desktop and into the fabric of our everyday lives. This course explores both systems and human–computer interaction. Students will design and implement a Ubiquitous computing application prototype.

**PREREQUISITE:** CSCI 3121.03

---

**CSCI 4131.03: Compiler Construction.**

An introduction to the major methods used in compiler implementation. Topics include lexical analysis and parsing methods, symbol table construction, run-time storage management, and code optimization.

**PREREQUISITE:** CSCI 2100.03, CSCI 2121.03, CSCI 2132.03 and CSCI 3136.03

---

**CSCI 4134.03: Software Architecture.**

Software Architecture is an important discipline for designers of software systems. It describes the abstractions, classifies the alternatives, enables tool support, and offers guidance when making choices appropriate to the software system design process. As software systems grow larger, good architectural design will play a major role in determining the success of a software system. This course covers four areas in software architecture: foundations of software architectures, tools for architectural design, analysis of software architectures, and "industry-rich" case studies.

**PREREQUISITE:** CSCI 3120.03 and CSCI 3115.03

---

**CSCI 4136.03: Software Testing and Quality Assurance.**

This course addresses systematic testing for software defects. The purpose of this kind of testing is risk reduction. The course explores risks and techniques for reducing them. Topics include software testing processes in practice, including use, integration and system testing; as well as exploratory, and regression testing; software testing methods and deliverables; software test tools; managing test technology; and other approaches to software quality assurance.

**PREREQUISITE:** CSCI 2132.03 and CSCI 3130.03

---

**CSCI 4137.03: Software Deployment, Maintenance, and Evolution.**

This course addresses issues arising after the Factory Acceptance Test: deployment, field support, and upgrades. Commercial software products (especially product lines) are delivered to many sites in many versions and are subject to an ongoing schedule of enhancements. Enterprise applications with many users must evolve, may run on different sites, and may require different versions. Topics include technical challenges of rollout, technical challenges of maintenance and evolution, and technical challenges of upgrading fielded systems.

**PREREQUISITE:** CSCI 3130.03

---

**CSCI 4138.03: Empirical Performance Modelling.**

This course addresses the testing of actual or simulated systems for quantitative measurement and prediction from empirical models. Topics include motivations for quantitative assessment; methodologies, point and performance models; pipeline hazards, interrupts, the relationship with compiler technology, and memory system design. Several representative architectures will be used as examples, with emphasis on modern RISC processors.

**PREREQUISITE:** CSCI 3110.03 and either ENG3 2032.03 or STAT 2060.03

---

**CSCI 4140.03: Advanced Database Systems.**

This course covers advanced database (DB) topics including, but not limited to: distributed and parallel systems, transaction processing, concurrency control and recovery, and distributed databases.

Additional topics may include object-oriented databases, multi-databases, data integration and data warehousing.

**PREREQUISITE:** CSCI 2441.03

**EXCLUSION:** CSCI 3140.03

---

**CSCI 4141.03: Information Retrieval.**

This course examines information retrieval within the context of full text databases. Topics include the major models of information retrieval, evaluation, searching and clustering, and hypertext.

**PREREQUISITE:** CSCI 2100.03 and (CSCI 2140.03 or CSCI 2141.03)

---

**CSCI 4144.03: Introduction to Data Mining and Data Warehousing.**

This course reviews main concepts in data mining and data warehouses including objectives, architectures, algorithms, implementations, and applications. The course covered includes operational information process, decision-oriented information process, data warehousing and On-Line Analytical Processing (OLAP), characterization mining, association rule mining, classification and prediction, and clustering. Selected system tools for data mining and data warehousing are introduced.

**PREREQUISITE:** CSCI 2441.03 or CSCI 3460.03

---

**CSCI 4145.03: Cloud Computing.**

Cloud computing provides users with the ability to access and use computational, storage, and interconnect resources as services offered by cloud providers. This course provides the students with the theoretical foundations of the cloud computing as well as with hands-on experience in using various cloud technologies. Topics covered are related to the types of cloud services, cloud...
animation. known kinematic techniques, physically based modelling, motion capture, and character algorithms in Computer Animation. Topics include interpolation based and The course introduces students to fundamental and advanced techniques and concepts, algorithms, data structures and the role of human perception.

Applications of visualization are broad, including computer science, geography, the social sciences, mathematics, science and medicine, as well as architecture and design. The course will cover all aspects of visualization including fundamental concepts, algorithms, data structures and the role of human perception.

The course introduces students to fundamental and advanced techniques and algorithms in Computer Animation. Topics include interpolation-based and kinematic techniques, physically-based modeling, motion capture, and character animation.

PREREQUISITE: CSCI 3161.03

CSCI 4163.03: Game Design and Development. This course covers the fundamentals of digital game design with an emphasis on team-based development. In this course students will produce a significant game using techniques and principles derived from established state-of-the-art industry practices. Topics include an examination of game design theories, programming architectures, audio-visual design and game production.

PREREQUISITE: CSCI 2100.03 and CSCI 3171.03

CSCI 4169.03: Usable Security. Human factors play an integral role in the effectiveness of security and privacy solutions, and it is important for security and privacy experts to understand how people will interact with the systems they develop. This course is designed to introduce students to a variety of usability and user interface problems related to privacy and security, and to give them experience in designing studies aimed at helping to evaluate usability issues in security and privacy systems.

Topics include human threat identification, security warning design, location privacy, privacy policies, web browser privacy and security, phishing, passwords, and secure communication.

PREREQUISITE: CSCI 3160.03

CSCI 4171.03: Networks and Communication. The primary objective of this course is to give the student a comprehensive understanding and specialized knowledge in the field of computer networks and communications. The course teaches through a systems approach to networks by examining the hardware and protocol components that comprise a network. The course also examines the interactions and interdependencies between protocols. Topics covered in this course include network protocols and concepts, transmission protocols, network architecture, routing and routing protocols, direct link networks, wireless networks, internetworking, and emerging network technologies.

PREREQUISITE: CSCI 2321.03 and CSCI 3171.03

CSCI 4174.03: Network Security. Security stands out as a critical issue in the design and deployment of information systems in general, and networks in particular. This course will deal with the design of secure information systems with emphasis on secure networking and secure information transfer. It will also include topical and emerging areas in security such as the establishment of an organization-wide security plan and biomorphic identification systems.

PREREQUISITE: CSCI 3160.03

CSCI 4176.03: Mobile Computing. This course covers the principles of mobile computing and the concepts and techniques underlying the development and deployment of mobile computing applications. Mobile computing is discussed from technological, application, and user perspectives. Topics are arranged along the lines of mobile technologies, development environments, application design for resource-limited devices, human-computer interaction, security, and mobile commerce.

PREREQUISITE: CSCI 2121.03 and CSCI 3171.03

CSCI 4180.03: Introduction to Computational Biology and Bioinformatics. This course introduces biology-related applications of computer science. No background in biology is assumed. The topics covered include the following: introductory molecular biology and evolution, genomics, similarity and homology, multiple sequence alignments, phylogenetics, structural bioinformatics and gene expression. The emphasis is on the applications of computer science to biology.

PREREQUISITE: CSCI 2312 and STAT 2600

CSCI 4181.03: Bioinformatics Algorithms. The discipline of bioinformatics applies sophisticated computational and statistical techniques to problems in the biological domain. This course will focus on a few bioinformatics-related challenges in depth, examining the complexity and efficiency of different approaches, the relationship between statistical optimality and biological reality, and the consistency (or lack thereof) among methods.

PREREQUISITE: CSCI 3110.03

CSCI 4190.03: Special Topics in Computer Science. This course examines topics determined by the interests of the students and the instructor.

PREREQUISITE: Permission of the instructor
CSCI 4191.03: Application Development Project. This is a project-oriented course for students to participate in distributed software development projects, such as the Undergraduate Capstone Open Source Project (www.ucosp.ca) initiative. Students work as part of a development team on new or existing projects for real-world applications. In this course students learn how to work in large development teams, which may be geographically distributed. Students implement portions of a large software project and give a public presentation on their work. Students work under supervision of a faculty member. A specific development project must be approved by the undergraduate chair in consultation with the instructor. PREREQUISITE: (CSCI 3120.03, CSCI 3104.03 and CSCI 3171.03) or INFX 4600.03.

CSCI 4192.03: Directed Studies. This course is a study of specific academic subject area not covered in another course offered at Dalhousie University, under close supervision of a faculty member. It typically consists of predetermined readings, discussions with the instructor, and a term paper summarizing the studied material. A specific directed studies course must be approved by the undergraduate chair in consultation with the instructor. PREREQUISITE: CSCI 3101.03, CSCI 3120.03, CSCI 3110.03, CSCI 3116.03, CSCI 3171.03.

CSCI 8873.03: Honours Seminar. This is a course through which students complete their Honours Thesis requirements. Honours students in Computer Science must register for this course or CSCI 8871/72. In this course, students complete their thesis research, write their honours thesis, and give public presentations of their work. In a normal course sequence, the student should have taken CSCI 4192 under the direction of their thesis supervisor. During this course, the student should have acquired the necessary background knowledge for their thesis research and formulated a research plan for their thesis work. Deviations from this sequence are possible. PREREQUISITE: Permission of the Honours Coordinator.

CSCI 8890.00: Co-Op Seminar. Students in the Bachelor of Computer Science Co-operative Education Program must register for this course, which orient students to the co-op system. Pass/fail grading applies to this course. PREREQUISITE: Permission of the Faculty of Computer Science.

CSCI 8891.00: Co-op Work Term 1. This course is the first work term for students in the Bachelor of Computer Science Co-operative Education Program. Pass/fail grading applies to this course. PREREQUISITE: CSCI 8890.00.

CSCI 8892.00: Co-op Work Term 2. This course is the second work term for students in the Bachelor of Computer Science Co-operative Education Program. Pass/fail grading applies to this course. PREREQUISITE: CSCI 8891.00.

CSCI 8893.00: Co-op Work Term 3. This course is the third work term for students in the Bachelor of Computer Science Co-operative Education Program. Pass/fail grading applies to this course. PREREQUISITE: CSCI 8892.00.

Informatics

I. Introduction
Informatics is the multidisciplinary study of how people transform technology, and how technology transforms us. It lies at the intersection of people, technology and information systems and focuses on the expanding relationship between information systems and the daily lives of people, both at home and at work. Informatics helps develop new uses for information technology in order to design solutions that reflect the way people create, use and find information, and it takes into account the social, cultural and organizational settings in which those solutions will be used.

Informatics professionals have very diverse jobs. Some typical activities include:
- assess information needs of organizations
- manage information projects
- solve organizational information flow problems
- make software package talks to each other
- model the information flows among a group of people
- design innovative user interfaces
- track health care resources
- design professional websites
- improve health care information systems
- develop business solutions

II. Degree Programs
A. Bachelor of Informatics

1. Program Structure
There is a choice of majors: Environment, Sustainability and Society, Specializations of your own design and Software Systems. Students should consult with the Faculty of Computer Science for details on other options that are being developed.

Elective courses are any courses of your own choosing, although no more than four may be at the 1000 level. The electives allow you to explore possible specializations and to follow personal interests.

A minor in Management is available to students registered in the BInf program. For further information, please see page 454 in the Management section of this calendar. Note: This increases the program requirements by one course.

The co-operative education program is a mandatory component of the Bachelor of Informatics. Students are required to complete three co-op work terms as part of their bachelor degree.

The co-op office receives requests from employers for co-op placements and advertises these to qualifying students. Students apply for these positions and are interviewed by the employer.

Co-op work terms are scheduled after terms 5, 6 and 7.

The normal academic sequence of terms follows:

<table>
<thead>
<tr>
<th>Yr/Term</th>
<th>Fall</th>
<th>Winter</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>A1</td>
<td>A2</td>
<td>FREE</td>
</tr>
<tr>
<td>Year 2</td>
<td>A3</td>
<td>A4</td>
<td>WT1</td>
</tr>
<tr>
<td>Year 3</td>
<td>A5</td>
<td>WT2</td>
<td>A6</td>
</tr>
<tr>
<td>Year 4</td>
<td>WT3</td>
<td>A7</td>
<td>A8</td>
</tr>
</tbody>
</table>

AT = Academic study term
WT = Co-op work term

2. General Requirements
- STAT 1060.03 Introduction to Statistics
- CSCI 3100.03 Computer Science I
- CSCI 3101.03 Computer Science II
See also the Academic Regulation section for the Faculty of Computer Science.

- Students who wish to transfer in to the Bachelor of Informatics program from
- First-Year Entry-Students are advised to apply directly to the Faculty of
There are multiple entry points in to the Bachelor of Informatics program.

6. Entry Points to Bachelor of Informatics

- At least five full credits must be at the 2000 level or higher.
- Your proposal must include career goals, a list of courses, a timeline, and a
- It is your responsibility to develop and submit to the Faculty a written proposal

5. Specialization of Your Own Design

- The Specialization of your own design follows the general Bachelor of Informatics requirements and must include the following:
  - CSCI 2110.03: Computer Science III
  - CSCI 2132.03: Software Development
  - CSCI 3113.03: Object Orientation and Generic Programming
  - CSCI 3160.03: User Interface Design
  - INFX 3172.03: Web-Centric Computing
  - INFX 4601.03: Project 4
  - INFX 4601.03: Project 5
  - six full credits in credits specified by the major
  - two full credits of free electives at or above the 1000 level
  - 1.5 full credits of free electives at or above the 2000 level
  - Completion of three co-op work terms

* Neither CSCI 3190.03 nor CSCI 3191.03 can be counted towards a Bachelor of Informatics degree.

3. Major in Software Systems

The Major in Software Systems follows the general Bachelor of Informatics requirements and must include the following courses:
  - CSCI 2110.03: Computer Science III
  - CSCI 2132.03: Software Development
  - CSCI 3113.03: Object Orientation and Generic Programming
  - CSCI 3160.03: User Interface Design
  - CSCI 3172.03: Web-Centric Computing
  - INFX 4601.03: Project 4
  - INFX 4601.03: Project 5
  - six full credits in credits specified by the major

4. Major in Environment, Sustainability and Society

The College of Sustainability offers a Major in Environment, Sustainability and Society in the BInf program. For complete details about the College, its programs and courses please see the College of Sustainability section on page 35 of the Calendar.

The Major in Environment, Sustainability and Society follows the general Bachelor of Informatics requirements and must include the following courses:
  - SUST 1000.06 (one full credit in fall term)
  - SUST 1901.06 (one full credit in winter term)
  - SUST 2000.06 or SUST 2100.06
  - three full credits from the approved list (at least two credits above 2000 level)

5. Specialization of Your Own Design

The Specialization of your own design follows the general Bachelor of Informatics requirements and must include the following:

- It is your responsibility to develop and submit to the Faculty a written proposal for these 14 courses.
- The 14 courses must be chosen from at least two disciplines other than Computer Science. Two of the disciplines must account for at least four credits each and at least 10 courses together.
- Your proposal must be developed in consultation with an undergraduate adviser from each of the disciplines.
- Your proposal must include career goals, a list of courses, a timeline, and a coherent justification for the proposal. It must be approved by the Faculty.
- At least five full credits must be at the 2000 level or higher.
- At least three full credits must be at the 1000 level or higher.

6. Entry Points to Bachelor of Informatics

There are multiple entry points in to the Bachelor of Informatics program:
  - First-Year Entry-Students are advised to apply directly to the Faculty of Computer Science.
  - Students who wish to transfer in to the Bachelor of Informatics program from other disciplines may be able to do so, but will have to make up any required prerequisites that are missing.

See also the Academic Regulation section for the Faculty of Computer Science.

7. Minor in Informatics Non-Computer Science Major BSc

The Minor in Informatics is available to students registered in the BSc-20 credit major and honours programs offered by the Faculty of Science. The requirements are for the appropriate program with the completion of the following courses to fulfill the Informatics Minor:

- INFX 2601.05
- 5. additional credits of INFX/CSCI at the 2000+ level, excluding CSCI 2100.03 and CSCI 3100.03

III. Course Descriptions

INFX 1606.03: Introduction to Web site creation.

This course introduces students to key web concepts and skills for creating and maintaining websites. This course is intended for students with no formal computer training. Topics include introduction to the Web, hyper-text markup languages such as HTML, style sheets, client-side programming, multimedia foundations, dynamic content and website organization and maintenance.

EXCLUSION: INFX 1600.18

INFX 1615.03: Concepts of Computing.

This course introduces some key concepts in computing and places them in context with a survey of applications. The skills developed in this course include research, reduction, problem solving and abstraction. The themes covered are the following: Data and storage, operating systems, networking and the Internet, database systems, artificial intelligence and computer graphics. This course is eligible to partially cover the writing requirement for students in the Bachelor of Computer Science, the Bachelor of Informatics and Bachelor of Science, Computer Science.

INFX 1616.03: Applications of Computing.

This course covers professional aspects of the computing industry. The main themes are: project management, software engineering and computer languages. It explores how technological advances impact the workplace for non-technical people. It also includes a module on proofreading and editing. This course is eligible to partially cover the writing requirement for students in the Bachelor of Computer Science, the Bachelor of Informatics and Bachelor of Science, Computer Science.

INFX 1690.03: Project Management Theory and Practice.

This course provides the basics of Informatics and technology project management. This course teaches both the theory required and allows for practical experience. Students work in project teams to solve practical informatics problems. This course is the first in a series of project courses that gives students the opportunity to develop technical and professional skills. Students are expected to take this course in their first year of study.

EXCLUSION: INFX 1600.18

INFX 2601.03: Introduction to Information Security.

Information security is becoming increasingly important in today's networked world, and is impacting every aspect of our lives including finance, healthcare, government, education, arts and entertainment. The objective of this course is to teach the basic principles of information security from the perspective of providing security assurances and its best practices for the real world. Topics include encryption, firewalls, viruses, operating system security, secure communications and authentication, virus protection, secure credit card and bank transactions, wireless security, computer forensics, identity theft, and protection, and phishing and biometric security.

EXCLUSION: INFX 2201.03

INFX 2640.03: Introduction to Database Systems.

This course introduces students to the concepts of database management systems and database design. Topics include: Database (DB) components, DB design using entity-relationship (relational and object oriented), SQL, and transactional properties and techniques to support them. The concepts will be reinforced using one or more Database Management Systems.

EXCLUSION: CSCI 2141.03
INFX 2670.03: Introduction to Server Side Scripting.
A server side scripting language is used to create web pages with dynamic content. The course provides the technology necessary for connecting client web pages to web servers and processing and storing information obtained using forms during web sessions.
PREREQUISITE: CSCI 1100.03 and INFX 1606.03
CROSS-LISTING: CSCI 2170.03
CO-REQUISITE: INFX 2640.03 or CSCI 2141.03

INFX 2690.03: Integrated Studies 1.
Students work in project teams to solve a practical informatics problem. Team members are drawn from all years of study. This project gives students an opportunity to develop their technical and professional skills.
PREREQUISITE: First year writing requirement

INFX 2691.03: Integrated Studies 2.
This course is a continuation of INFX 2690.03
PREREQUISITE: INFX 2690.03, INFX 1606.03, CSCI 1100.03

INFX 3600.03: Integrated Studies 3.
This course is a continuation of INFX 2691.03 with the development of leadership skills.
PREREQUISITE: INFX 2640.03, INFX 2670.03, INFX 2691.03

INFX 3601.03: Integrated Studies 4.
This course is a continuation of INFX 3600.03
PREREQUISITE: INFX 3600.03

INFX 3630.03: Introduction to Software Engineering.
See the course description for CSCI 3130.03 in the Computer Science section of this calendar.
PREREQUISITE: CSCI 2101.03, CSCI 2132.03, or INFX 3600.03
CROSS-LISTING: CSCI 3130.03

INFX 3690.03: Research Methods.
Organizational needs for information may not be known a priori, and may need to be established by surveys. This course prepares students to conduct research requiring measurement, sampling, and data analysis and reporting. It also deals with ethical issues and research design.

INFX 4600.03: Integrated Studies 5.
Continuation of INFX 3690.03
PREREQUISITE: CSCI 3130.03, INFX 2690.03, and (INFX 3601.03 or CSCI 3191.03)

INFX 4601.03: Integrated Studies 6.
Continuation of INFX 4600.03
PREREQUISITE: INFX 4600.03
Faculty of Engineering

Location: Sexton Campus, Room MA 108
Fax: (902) 429-3011
Phone: (902) 429-3011
Website: http://www.dal.ca/engineering

Dean
Lion, E. J., B.Sc, M.Sc, PhD (Dalhousie), P.Eng
Location: Room MA115, Sexton Campus
Phone: (902) 494-3267
Fax: (902) 494-3267

Associate Dean, Undergraduate Studies and Associated Universities
Cyrus, J. P., B.Sc (Eng) (UWI), MASc, PhD (TUNS), P.Eng
Location: Room MA 108, Sexton Campus
Fax: (902) 429-3011
Phone: (902) 429-3011

Location: Room D216, Sexton Campus
Fax: (902) 429-3011
Phone: (902) 429-3011

Assistant Dean, Co-op
Peltier, R., B.A.Sc (Otawa), M.A.Sc (Alberta), PhD (Waterloo), P.Eng
Location: Room MA202, Sexton Campus
Fax: (902) 429-3011
Phone: (902) 429-3011

Director, Core Program
Jayasuriya, G., P.Eng (TUNS), MA.Sc, PhD (Dalhousie), P.Eng
Location: Room 332
Fax: (902) 429-3011
Phone: (902) 429-3011

I. Engineering as a Profession

Engineering is an important profession. Virtually all aspects of modern life are involved with this fascinating discipline. Engineering education at Dalhousie is demanding, because the engineering profession is demanding. Society expects its technical problem-solving skills to offer answers to some of the most difficult questions around, questions related to the environment, productivity, information technology, communications, transportation, and more. In general, the engineering enterprise contributes not only to human welfare, but also to the sustainable development of our resources. Engineering education provides great rewards for the engineer of the future. Specifically, there is the personal satisfaction of following a career where one’s personal expertise can benefit fellow humans and contribute to the making of a better world.

The Faculty of Engineering at Dalhousie University prepares its students with the problem-solving skills needed for lifelong exploration in a field that answers some of today’s most pressing questions. The Faculty of Engineering fosters a close tradition of providing engineering education for students in the Atlantic Provinces that started in 1907 with the founding of the Nova Scotia Technical College. Its graduates occupy many important positions throughout Canada and in many other countries.

The Faculty of Engineering offers undergraduate curricula leading to the degree of Bachelor of Engineering in the following disciplines:
- Chemical Engineering
- Civil Engineering
- Electrical Engineering
- Environmental Engineering
- Industrial Engineering
- Materials Engineering
- Mechanical Engineering
- Mineral Resource Engineering

The Faculty also offers a Bachelor of Applied Science in Food Science (admission suspended, pending review), and post-graduate studies at the master’s and doctoral level.

For students who are eligible, the Faculty of Engineering offers a Bachelor of Engineering Co-operative Education program that integrates academic study with university-approved industrial experience. Graduation from this program requires satisfactory performance in both areas. The schedule of study and work terms varies according to the discipline, details of which are outlined in Section E of the Engineering curricula in this calendar.

The co-operative education system requires students to alternate periods of study with periods of university approval, full-time, paid employment. The period of employment is called a work term and is normally four months (16 weeks) in length. Some programs combine two or more four-month work terms. Work terms have academic requirements that must be completed in addition to the requirements of the employer.

The co-op degree program covers almost five calendar years, comprising eight or nine terms (depending on the area of specialization) each consisting of about four months’ duration of university work on campus which are pursuits alternately with four-month terms of supervised training in the practical experiences fundamental to the development of the graduate engineer. In a typical program of study, the total time spent in academic study is the same as that encountered in the usual course of four academic years.

Graduation from the University is the beginning of a lifelong learning experience. After completion of formal studies leading to the Bachelor of Engineering degree, and being admitted to an Engineer in Training (EIT) by an Association of Professional Engineers in Canada, four years of suitable experience are required as a condition of admission to the profession of Engineering.

The practice of engineering is regulated, by statute, in all Canadian provinces and territories. To become a Professional Engineer you must satisfy the requirements of the licensing bodies. These requirements include a degree from an accredited program, successful completion of a professional practice (law and ethics) examination, and suitable experience. Accreditation of the degree programs by the CEAB is the mechanism by which graduates qualify for registration as Professional Engineers without the need to undertake additional examinations in specific technical subject areas. The EIT programs described in this calendar have been specifically designed to satisfy the criteria of the Profession and are evaluated regularly by the Canadian Engineering Accreditation Board (CEAB) of Engineers Canada. The Faculty will not graduate any student who does not meet these requirements because this would jeopardize accreditation for the programs. The department responsible for the appropriate program will use these requirements in determining the suitability of student elective course selections. The baccalaureate programs in all disciplines are accredited by the Canadian Engineering Accreditation Board.
II. Degree Programs

A. Undergraduate

1. Engineering

1.a Bachelor of Engineering

Students who have successfully completed the academic study program in any of the disciplines will be granted the degree of Bachelor of Engineering.

1.b Bachelor of Engineering with Distinction

Students who have successfully completed the requirements for the degree of Bachelor of Engineering, and have obtained a Cumulative Grade Point average of at least 3.7, will be granted the degree of Bachelor of Engineering with Distinction.

1.c Bachelor of Engineering with Sexton Distinction

Dr. F.H. Sexton was the President of the Nova Scotia Technical College since its establishment in 1909 until his retirement in 1947. To honour his contributions, the Faculty of Engineering awards the designation of Sexton Distinction to each undergraduate student who has taken a full course load and obtained a cumulative Grade Point Average of at least 3.85 or higher with no failed marks during their program beginning in Academic Term 5.

1.d Co-operative Program Designation

Students who have successfully completed the requirements for the degree of Bachelor of Engineering and who, in addition, have successfully completed three four-month work terms, each of a minimum of 14 weeks, with a minimum of 35 hours per week, will receive the "Co-operative Education" designation on their degree.

1.e Diploma of Engineering

Students who have successfully completed the academic study program in the first four terms in any of the disciplines will be granted the Diploma of Engineering.

1.f Combined Bachelor of Science/Diploma of Engineering

Students may register in a combined Bachelor of Science Bachelor of Engineering program. Those who successfully complete the requirements as outlined in the Concurrent Programs sections will be awarded the Diploma in Engineering and the 15 credit Bachelor of Science Degree.

1.g Combined Bachelor of Arts/Diploma of Engineering

Students may register in a combined Bachelor of Arts Bachelor of Engineering program. Those who successfully complete the requirements as outlined in the Concurrent Programs sections will be awarded the Diploma in Engineering and the 15 credit Bachelor of Arts Degree.

2. Food Science

Bachelor of Applied Science

This is a standard 20 credit curriculum. Consult the Food Science section for details.

B. Graduate

1. Master of Applied Science

Students who have successfully completed the course requirements for the degree and who have submitted and defended orally an acceptable thesis, will be awarded the degree of Master of Applied Science.

2. Master of Engineering

Students who have successfully completed the course requirements for the degree and submitted an acceptable project report, will be awarded the degree of Master of Engineering.

3. Master of Engineering (Internetworking)

This is a 10-month plus internship project interdisciplinary Master’s Degree program focused on the theory and technology of the Internet. This program has been designed to prepare individuals to play an active role in the rapidly expanding field of Internetworking. Students who complete the prescribed ten courses and a project course will be awarded the MEng (Internetworking).

4. Master of Science

Students who have successfully completed the course requirements for the degree in Engineering Mathematics or Food Science and who have submitted and defended orally an acceptable thesis or project report, shall be awarded the degree of Master of Science.

5. Doctor of Philosophy

Students who have successfully completed the course requirements for the PhD degree, passed their comprehensive examination, and submitted and defended orally a satisfactory thesis, will be awarded the degree of Doctor of Philosophy.
Engineering

I. The Associated University Program

Students who have completed the degree requirements for a Diploma of Engineering or a Certificate of Applied Science from one of the Associated Universities are admissible to the Upper Division in the Faculty of Engineering. Admission to specific programs is competitive and is based on the students’ academic standing. The Associated Universities are:

- Acadia University
  Wolfville, Nova Scotia
  A. Mitchell, Director
  The Ivan Curry School of Engineering

- Cape Breton University
  Sydney, Nova Scotia
  E. MacLLellan, Director
  Diploma in Engineering Program

- St. Francis Xavier University
  Antigonish, Nova Scotia
  F. Comans, Chairman
  Department of Engineering

- Saint Mary’s University
  Halifax, Nova Scotia
  A. Merchant, Director
  Division of Engineering

- University of Prince Edward Island
  Charlottetown, Prince Edward Island
  S. Champion, Chairman
  Engineering Department

Each of the Associated Universities establishes its own entrance requirements. Dalhousie University recognizes all of the Associated Universities and enforces proper standards of achievement by means of the Associate University’s Degree of Engineering Committee. The program at each Associated University contains courses fulfilling the minimum entrance requirements established by the Senate of Dalhousie University. Students who complete the applied science or engineering program at an Associated University may receive a Certificate or Diploma and are normally admitted to the programs in Chemical, Civil, Electrical, Environmental, Industrial, Materials, Mechanical, or Mineral Resource at Dalhousie without examination. Students should ensure that their course selection of engineering courses on a letter of permission.

II. Academic Regulations

Courses on Letters of Permission

The academic program for a student will normally contain a maximum of two courses on a letter of permission. Working Rules also apply to all students.

Students are reminded that the academic regulations stated in the calendar and the regulations stated below, the current Faculty of Engineering Working Rules also apply to all students.

Course Grades

A student must achieve a grade of D or greater in each course of the curriculum and satisfy the regulations set out herein in order to graduate. Where Faculty regulations permit, a student who achieves a grade of F in a required course may write a supplementary examination to attempt to raise the grade to D or greater. If the grade is raised to at least D by means of a supplementary examination or if a supplementary examination is not permitted, the student must repeat the course. See also Supplementary, page 32.

A student is permitted to write a failed mandatory course only once. In the case of a failed elective course, a student may choose either to repeat the course or to substitute another elective course in lieu of the failed course. In the case of a substituted course only one such substitution is allowed. A student will be academically dismissed if the grade achieved in the repeated mandatory course or the repeated elective course or the substitution course is less than D.

Readmission After Academic Dismissal

A student who has been academically dismissed only once from their program may apply to be readmitted to the same program after a minimum of eight months from the time of dismissal, or, such a student may apply to be admitted to a different engineering program starting immediately. Readmission may be granted by the Faculty on the recommendation of the Department concerned. A department may readmit a student who has been academically dismissed, subject to special academic conditions set by the department, which are based on an evaluation of the student’s academic record. See also Academic Dismissal, page 32.

Scholarships

Only those students who are registered for a full load of courses as measured by the curriculum of the program concerned will be eligible for scholarships and awards in the Faculty of Engineering.

Supplementary Examinations

Supplementary examinations may be offered to students in order (1) to raise a course grade to at least D, (2) to raise a term GPA to at least C. In the case of raising the term GPA, the supplementary examination will be offered in a course with a grade lower than C. A student who is on Academic Dismissal is not eligible to write a supplementary examination.

Only one supplementary examination will be permitted per session. It must be written on the first scheduled date for writing supplementaries for that student’s particular course and cannot be postponed or carried forward to a later session. Supplementary examinations will normally be held in late August prior to the fall term, early January in the winter term and early May in the summer term.

Supplementary examinations will not necessarily be available for all courses. In addition, the minimum reported final mark required to write a supplementary examination is F. The Faculty will determine the courses in which supplementary examinations are not available and a list of those courses will be published early in the term.

The course mark resulting from a supplementary examination will replace the original course mark for all purposes. When a supplementary examination is offered, the mark obtained on the supplementary examination will normally replace the final examination mark in calculating the course grade.

Repeating Students

If changes are made in the curriculum, repeating students will be required to satisfy the new curriculum.

Auditing a Course

See definition of “audit student,” page 32.

Students who are registered for a degree in the Faculty must have the approval of the Faculty to audit a course. Such approval can be obtained by submitting a written request to the Dean, who will refer the matter to the Faculty for a decision.

Medical Notes for Final Examinations

Students who miss final examinations for medical reasons must submit medical notes to the Undergraduate Studies Office for consideration by the Associate Dean of Engineering. The medical note is verified and the professor advised if they may...
1. By April 30, each student must specify ordered preferences for three or more engineering disciplines. The procedure is as follows:

2. Admission to an Engineering Discipline

A student must apply to be admitted into one of the engineering disciplines. Approval must be made by April 30 of any year, for conditional acceptance into year two of the Bachelor of Engineering program.

Every engineering discipline has a defined minimum-acceptance; therefore places are assigned on a competitive basis. The criterion for this competition is the average grade over all credits completed to date in the curriculum of the Diploma in Engineering.

The procedure is as follows:

1. By April 30, each student must specify ordered preferences for three or more engineering disciplines. The application is for conditional acceptance into year two of an engineering discipline.

2. Any student who has completed all of the entry requirements for an engineering discipline, with a GPA of 3.30 or better, will be guaranteed a place in that engineering discipline.

3. In a single competition, students with a GPA, greater than or equal to 3.00 and less than 3.30 will be assigned conditional places (year two) in their engineering discipline, procuring in strict order of GPA, subject to discipline capacities.

4. Any student with a GPA of less than 2.00 will not be admitted to a discipline.

B. BSc/BEng

Students who meet the admission requirements for the Bachelor of Science program and the Bachelor of Engineering program are eligible to select this concurrent degree option. Students wishing specific advice should consult the Assistant Dean, Faculty of Science and the Associate Dean, Faculty of Engineering. Students accepted will complete the 15 credits BSc and the first two years of engineering studies leading to the Diploma in Engineering concurrently in a period of three calendar years. At the end of the three year period, both the degree and the diploma will be awarded to successful candidates. It is thus possible to complete the requirements for the Bachelor of Science and Bachelor of Engineering degrees concurrently in a time period of five years in total (or up to six years for Co-op programs).

C. BA/BEng

Students wishing to do so may complete the 15 credits BSc degree program and the first two years of engineering studies leading to the Diploma in Engineering concurrently in a period of three calendar years. At the end of the three year period, both the degree and the diploma will be awarded to successful candidates. It is thus possible to complete the requirements for the Bachelor of Engineering and the Bachelor of Arts degrees concurrently in a time period of five years in total (or up to six years for Co-op programs).

Courses in the fourth and fifth years are those required to finish the Bachelor of Engineering degree.

D. Diploma of Engineering

Students who have successfully completed the academic study program in the first four terms in any of the disciplines may be eligible to apply for the Diploma in Engineering. This means a student must have a minimum GPA of 2.0, and have completed, with a minimum grade of D, the required courses as specified in the discipline curriculum.

Curricula for Terms 1 - 4

Year 1 — Term 1 Fall
- ENGI 1101 Engineering Design and Graphics I
- ENGI 2102 Mechanics of Materials I
- ENGI 2103 Introduction to Physics I
- ENGI 2121 Introduction to Engineering Mathematics I

Year 1 — Term 2 Winter
- ENGI 1202 Mechanics of Materials II
- ENGI 1203 Introduction to Engineering Mathematics II

Year 2 — Term 3 Fall
- BIOL 1030 Biology for Engineers
- HISCT 1800 History of Engineering I
- ENSC 2101 Applied Vector Calculus
- ENGI 2102 Probability and Statistics
- SCED 2000 Electric circuits
- ENGI 2102 Thermo-Fluid Engineering I

Year 2 — Term 4 Winter
- ENGI 2202 Thermodynamics
- HISCT 1801 History of Engineering II
- ENGI 2202 Applied Differential Equations
- Three discipline-specific electives
Discipline-Specific Choices

**Chemical Engineering**
- PEAS 2201 Fundamentals of Process Engineering
- PEAS 2202 Fundamentals of Environmental Engineering
- PEAS 2203 Organic Chemistry

**Civil Engineering**
- ENGI 2400 Mechanics II: Dynamics
- MINE 2200 Introductory Geology for Engineers
- ENGI 2103 Thermo-Fluid Engineering II

**Environmental Engineering**
- PEAS 2201 Fundamentals of Process Engineering
- PEAS 2202 Fundamentals of Environmental Engineering
- PEAS 2203 Organic Chemistry

**Industrial Engineering**
- IENG 2005 Engineering Economics
- Any two electives from the following:
  - ECED 2001 Circuit Analysis
  - ECED 2200 Digital Circuits
  - PEAS 2201 Fundamentals of Process Engineering
  - PEAS 2202 Fundamentals of Environmental Engineering
  - MINE 2200 Geology for Engineers
  - ENGI 2103 Thermo-Fluid Engineering II

**Materials Engineering**
- PEAS 2201 Fundamentals of Process Engineering
- PEAS 2202 Fundamentals of Environmental Engineering
- PEAS 2203 Organic Chemistry

**Mechanical Engineering**
- ENGI 2400 Mechanics II: Dynamics
- IENG 2005 Engineering Economics
- ENGI 2103 Thermo-Fluid Engineering II

**Mineral Resource Engineering**
- MINE 2200 Introductory Geology for Engineers
- Any one elective from the following:
  - ECED 2001 Circuit Analysis
  - ECED 2200 Digital Circuits
  - PEAS 2201 Fundamentals of Process Engineering
  - PEAS 2202 Fundamentals of Environmental Engineering
  - ENGI 2400 Mechanics II: Dynamics
  - PEAS 2203 Organic Chemistry
  - ENGI 2103 Thermo-Fluid Engineering II

The elective choices are summarized in the table below.

<table>
<thead>
<tr>
<th>Discipline-Specific Electives</th>
<th>Environmental</th>
<th>Chemical</th>
<th>Civil</th>
<th>Electrical</th>
<th>Industrial</th>
<th>Mechanical</th>
<th>Materials</th>
<th>Mineral Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECED 2001 Circuit Analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECED 2200 Digital Circuits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEAS 2201 Fundamentals of Process Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEAS 2202 Fundamentals of Environmental Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGI 2400 Mechanics II: Dynamics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEAS 2203 Organic Chemistry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MINE 2200 Introductory Geology for Engineers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IENG 2005 Engineering Economics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGI 2103 Thermo-Fluid Engineering II</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* any two electives for Industrial
** any one elective for Mineral Resource

E. Engineering Co-op Program

The Faculty of Engineering offers a Bachelor of Engineering Co-operative Education program (BEng Co-op) that integrates academic study with university approved industrial experience. Graduation from this program requires satisfactory performance in both areas. The schedule of study and work terms varies according to the discipline, details of which are outlined below.

BEng Co-op is a selective program. Students interested in participating in the Engineering Co-op Program must register for the Engineering Co-op Orientation course by January 15th for the following programs: Chemical, Environmental, Materials and Mechanical, and by May 15th for Civil, Electrical, Industrial and Mineral Resource.

Co-operative education is based on the principle that an academic program combined with work experience in alternating terms, is desirable for effective professional preparation. Work term employment, which varies from sector to sector and location to location, allows students to acquire experience in their areas of career interest, while study terms are devoted primarily to fundamental and theoretical studies. These practical experiences and academic studies complement each other.

Students interested in participating in the Co-op Program, should be aware that work terms exist in a variety of public and private settings. Students compete for jobs four months prior to the start of the work term. Students will be assisted by the Dalhousie University Engineering Co-op Office, and efforts will be made to find suitable opportunities for eligible students. There are, however, no assurances that each student will secure a Co-op position. Students with high CGPAs, enthusiasm, and professional potential have typically had the greatest success in securing Co-op work terms. For other regulations pertaining to the co-op program, please refer to the Policies section of the Engineering Co-op website.

The Study and Work Schedule

The co-operative system requires students to alternate periods of study with periods of university approved, full-time, paid employment. The period of employment is called a work term and is normally four months (16 weeks) in length. Some programs combine two or more four-month work terms. Work terms have academic requirements that must be completed in addition to the requirements of the employer.
Eligibility

Students who meet the admission requirements for Co-op:
1. Are registered in the Bachelor of Engineering Program;
2. Have attained a minimum cumulative grade point average (CGPA) of 2.3 (or equivalent) in the Diploma of Engineering program;
3. Have completed all requirements for a Diploma of Engineering or equivalent (i.e. Have no deficiencies at the beginning of the term in which the job search starts);
4. Are eligible to work in Canada;
5. Have met all the academic pre-requisites for the particular co-op term, including passing all previous work terms;
6. Have successfully completed the Co-op Orientation course;

Students must also meet the following criteria to be eligible to compete for a work term and continue in the program:

• meet performance expectations of previous co-op employers;
• receive a passing grade for all previous work terms;
• refrain from deliberately misrepresenting themselves in academic or employment matters pertaining to the co-op program;
• be able to complete three work terms in the schedule prescribed by their discipline;
• adhere to the job competition regulations in the Policies section of the Engineering Co-op website;
• keep the Co-op Office informed of their employment status;
• maintain professional conduct at all times with respect to employers and co-op staff;
• refrain from deliberately misrepresenting themselves in academic or employment matters pertaining to the co-op programs;
• receive a passing grade for all previous work terms;
• meet performance expectations of previous co-op employers;

Students who opt out of co-op will not be re-admitted.

Obtaining Employment

It is the student’s responsibility to arrange suitable work term employment that is pre-approved by the Co-op Office. Students must be prepared to conduct their own job search in addition to competing for the employment opportunities that the Co-op Office solicits and advertises through the online myCareer system. The employment success rates of co-op students vary from program to program and from term to term based on prevailing labour market conditions. Employment statistics, by program, are available on the Engineering Co-op website.

The employment process is highly competitive, students are competing for jobs with their classmates and with students in other co-op programs across the country. Factors such as academic performance, skills, motivation, maturity, attitude, professional conduct, flexibility and performance potential, determine whether or not a student is offered employment. To be successful, students must review the job and interview notices daily, apply to an adequate number of opportunities, check and respond promptly to all Co-op Office correspondence, conduct their own job search, and maintain realistic expectations of job content, geographic locations and salary. Students should be aware that some co-op employers conduct criminal and/or driving record checks or other screening procedures. In some cases, it is the student’s responsibility to have such procedures completed.

Work term employment agreements are between the student and the employer. Dalhousie University is not a party to those agreements and assumes no financial or legal responsibility with regard to events or actions by either party that affect the employment situation for any co-op student (e.g. layoffs, intellectual property issues, confidentiality agreements, strikes, etc.). Students are responsible for knowing all the terms and conditions of employment before accepting a job.

Work Term Conduct

Because the University relies heavily on maintaining long-term successful relationships with employers to provide work terms, students on work terms must consider themselves to be ambassadors of the program. As such, students will:

• abide by the policies and procedures of their employer as well as the policies and procedures of the University and the Co-op Office;
• fulfill the entire time commitment required for each co-operative education work term;
• attempt to resolve with the employer any difficulties which arise during the work term and notify the Co-op Office immediately if they cannot be resolved;
• contact the Co-op Office prior to making any decision affecting their employer and/or employment;
• assist the Co-op Office with scheduling a work site meeting with the supervisor;
• maintain professional conduct with all co-workers, clients and supervisors.

Work Term Evaluation

Work terms are considered academic terms. Students must complete a set of academic requirements, as prescribed by their discipline, in addition to the work required by their employment supervisor. Students are given a Pass/Fail grade for each four-month work term. All disciplines have the following minimum requirements, some disciplines have additional requirements:

1. Complete the work term monitoring process.
3. A work term report.
4. A performance appraisal completed by the supervisor.

Students must achieve a satisfactory grade for each item in order to achieve a passing grade for the work term. The specific guidelines for each of these items are available from a variety of sources including the Co-op Office and Engineering Departmental websites.

Graduation

To graduate with a “Co-operative Education” designation on their degree, students must successfully complete three work terms.

Fees

Students are charged a non-refundable co-operative education program fee. Consult the Co-op Office for complete details.

IV. Course Descriptions

ECED 2000.03: Electric Circuits.

This is an introductory course in electric circuit analysis. The material covered starts with a review of the fundamental circuit variables such as voltage, current, charge, power and energy. Kirchhoff’s laws are introduced and developed into node and loop analysis techniques. Terminal behavior and circuit equivalence including Thévenin and Norton circuits are covered. Analysis with controlled sources and energy storage elements is developed including steady state and transient response for first order networks. Phasors and sinusoidal steady state are introduced. Students are introduced to circuit simulation tools such as P-spice.

PREREQUISITE: MATH 1290H3, PHYS 1260H3 or equivalent

ECED 2001.03: Circuit Analysis.

This course covers advanced circuit analysis techniques, starting with sinusoidal excitation. The concepts of phasors and complex impedance are fully developed. Mutual inductance and magnetically coupled coils are used to introduce transformer behavior and performance. Real and reactive power flow is covered before the introduction of balanced three phase circuits for power distribution.
Symmetrical components are introduced as a means of dealing with unbalanced networks. The concepts of grounding and harmonics are also introduced. FORMULAE: Lecture 3 hours, lab 3 hours

ECED 2200.03: Digital Circuits.
This course includes an introduction to Boolean algebra, encoders, decoders, shift registers, synchronous and asynchronous counters, together with timing considerations. Design of synchronous circuits, synchronous sequential circuits, and finite state machines is covered. Knowledge mapping techniques and state tables and diagrams are taught. Programmable logic is introduced. Contemporary computer-aided design and analysis software is used throughout the course. FORMULAE: Lecture 3 hours, lab 3 hours PREREQUISITE: ECE 2000.03

ENGI 1101.045: Engineering Design I.
The objective of the course is to provide students with conceptual design experience, team work experience, computer-aided design experience and to develop skills in engineering free-hand sketching, 3-D modeling, and rendering of engineering drawings. An integral part of the course is the Design Project, focused on design as the essence of engineering, and the process of design and reporting. Also included are lectures on technical writing and presentation skills, study skills, examination skills and an introduction to the variety of disciplines of engineering and technical regulations for engineering. FORMULAE: Lecture 6 hours, seminar 1 hour, lab 3 hours

This course teaches the concept of stress, strain and deformation of a solid body subjected to static forces. Topics considered include: stresses and strains under axial, bending, torsional and combined loadings, transformation relations for stresses and strains, Mohr’s circle for stresses and strains, stress graphs, mechanical properties of materials as failure theories. Also considered are introduction to the engineering profession, engineering ethics and professional responsibility as well technical writing and presentation skills. An individual design project is a major component of this course. FORMULAE: Lecture 6 hours, seminar 1 hour, lab 3 hours PREREQUISITE: PHYC 1190.03, MATH 1280.03

ENGI 2102.03: Thermo-Fluid Engineering I.
This course introduces the engineering sciences of thermodynamics and fluid mechanics in an integrated manner. A unified approach to energy transfer in thermal and mechanical systems is presented. The course covers basic properties of fluids, fluid statics, simplified analyses of fluid motion, the basic laws of thermal energy, and the application of control volume techniques to engineering problems. Power systems are introduced through a study of the Rankine cycle. FORMULAE: Lecture 4 hours, seminar 1 hour, lab 3 hours PREREQUISITE: ENGI 1202.045, CHEM 1021.03, MATH 1280.03, PHYC 1190.03

ENGI 2103.03: Thermo-Fluid Engineering II.
This course builds on the fluid mechanics introduction presented in Thermo-fluids I to present engineering concepts of fluid mechanics and energy. The course covers dimensional analysis, complex fluid dynamics from Thermo-fluids I, puts a larger emphasis on the motion of control volume needed to properly solve thermal fluid problems using the conservation laws presented as integral relations, transient flow in ducts using umbrellas on local losses (friction and minor) and presents a practical theory of turbomachinery. The different concepts studied during the course are brought together at the end in a series of design examples and design problems. FORMULAE: Lecture 3 hours, lab 2 hours PREREQUISITE: ENGI 1202.045, ENGI 2102.03, CHEM 1021.03, CHEM 1022.01, MATH 1280.03

ENGI 2203.03: Engineering Design II.
This course provides a project-based exercise in the engineering design process. Students work in teams and as individuals on defined projects which apply knowledge and skills in all areas of engineering studied in semesters 1 to 3. The projects encompass the design method, conceptual design, design selection, detailed analysis, CAD and simulation tools, engineering drawings, safety and preparation of professional technical reports. Discipline-specific projects are assigned. All projects involve evaluation/testing of student designs, depending on the discipline section either through (i) construction and testing of a physical prototype or (ii) development and testing of an engineering simulation model. PREREQUISITE: ENGI 1101.045, ENGI 1202.045 and ENGI 1801.03

ENGI 2400.03: Mechanics II.
This second course in Engineering Mechanics considers the kinematics and kinetics of a single particle and a single rigid body. The course builds on the concepts introduced in ENGI 1400.03 (Mechanics I). Both vector and scalar methods are used. Topics include kinematics of a particle, kinetics of a particle, kinematics of a rigid body, kinetic and static motions, and plane kinematics of a rigid body. FORMULAE: Lecture 3 hours, lab/tutorial 3 hours PREREQUISITE: ENGI 1801.03, MATH 1280.03, PHYC 1190.03, MATH 1280.03

ENGM 1041.03: Applied Linear Algebra.
This course covers geometric vectors in three dimensions, dot product, cross product, linear independence, complex numbers, systems of linear equations, matrix algebra, matrix inversion, determinants, Cramer’s rule, introduction to vector spaces, linear independence and bases, rank, linear transformations, orthogonality and applications, Gram-Schmidt algorithm, eigenvalues and eigenvectors. FORMULAE: Lecture 3 hours, lab 2 hours

ENGM 1081.03: Computer Programming.
This course covers fundamental programming principles including flow control, modularity, and structured programming. The student will implement significant programs in the C language to solve engineering problems. FORMULAE: Lecture 5 hours, lab 2 hours

The topics covered include probability laws and the interpretation of numerical data, probability distributions and probability density functions, random variables, joint distributions, inference concerning mean and variance, t-test of hypotheses, and introduction to linear regression. The course emphasizes engineering applications and makes extensive use of statistical computer packages. FORMULAE: Lecture 5 hours, lab 2 hours

ENGM 2101.03: Applied Vector Calculus.
This course covers space curves, arc-length, curvature, functions of several variables, partial derivatives, implicit functions, constrained and unconstrained extremas, multiple integrals, line, surface, and volume integrals, change of variables in multiple integrals, integral theorems and curl, Stokes Theorem, the Divergence Theorem, and applications to heat flow, electromagnetics and fluid flow. Programming skills are developed using software tools to solve practical problems. FORMULAE: Lecture 3 hours, lab 2 hours PREREQUISITE: MATH 1280.03 and MATH 1290.03

This course covers space curves, arc-length, curvature, functions of several variables, partial derivatives, implicit functions, constrained and unconstrained extremas, multiple integrals, line, surface, and volume integrals, change of variables in multiple integrals, integral theorems and curl, Stokes Theorem, the Divergence Theorem, and applications to heat flow, electromagnetics and fluid flow. Programming skills are developed using software tools to solve practical problems. FORMULAE: Lecture 3 hours, lab 2 hours PREREQUISITE: MATH 1280.03 and MATH 1290.03

ENG 2005.03: Engineering Economics.
This course is designed to provide students with the fundamentals of engineering economics. Engineers must function as managers in the real world of decision making where the economic indices are not only technological capital investments but also time value of money, project screening, and a variety of decision analysis techniques are presented. Make versus buy decisions and repair versus replace decisions are discussed. The tax effects on project cash flow and viability are also presented. This course is designed to introduce students to these fundamentals, and apply them through the use of software and projects. FORMULAE: Lecture 3 hours, lab 2 hours

PEAS 2201.03: Fundamentals of Process Engineering.
The main objective of this course is to develop the student’s ability to perform mass and energy balances on non-reactive and reactive processes. Introductory topics include systems of units and a study of process variables such as temperature, pressure and flow rate. Also covered are fundamental properties of multiphase systems, including phase equilibrium, vapour pressure, and Raoult’s and Flory-Huggins Laws. Emphasis is placed on developing problem solving skills and adopting a consistent approach to the analysis of process systems. FORMULAE: Lecture 5 hours, tutorial 2 hours PREREQUISITE: ENGI 2102.03

PEAS 2202.03: Fundamentals of Environmental Engineering.
This course will focus on sources of environmental pollutants, the effects of pollutants on living and non-living systems, and the processes by which pollutants are generated or by which their effects can be minimized or remediated. Lecture
Students will first develop an understanding of structure and bonding in organic compounds. With this background, the chemical and physical properties of the major functional groups will be introduced, with a focus on applications relevant to process engineers. Specifically, the synthesis and chemical reactions of commercially important molecules will be highlighted. Physical separations (i.e., distillation, crystallization) used in organic synthesis and spectroscopic methods of analysis will also be described.

**FORMA T:** Lecture 3 hours, lab 2 hours

**PREREQUISITE:** CHEM 1021.03 and CHEM 1022.03

**CPST Series: Complementary Studies Courses**

**CPST 3030.03: Engineering in Society II.**

The course provides an overview of the concepts and interrelationships among sustainable development, environmental stewardship and public health and safety in relation to engineering practice. These concepts will be examined through historical examples and current theory and practice of the engineering profession. Lectures and discussion will consider global ecosystem functions, human interactions with the environment, methods of reducing human impacts, methods of achieving sustainability, engineering challenges to enhance sustainable development, and factors that influence occupational health and safety from engineering and management viewpoints. Students will be exposed to a range of management methods and tools such as environmental auditing, ISO 14000, risk analysis and WHMIS and will be expected to consider class topics in relation to their own area of engineering specialization.

**FORMA T:** Lecture 3 hours

**Chemical Engineering**

**Location:** Sexton Campus
1560 Barrington Street
PO Box 15000
Halifax, NS B3H 4R2

**Telephone:** (902) 494-3953

**Fax:** (902) 420-7639

**Dean**
Leen, L. J., BSc, MSc, PhD (Dalhousie), PEng

**Department Head, Process Engineering and Applied Science**
Pegg, M. J., BSc, PhD (Leeds), PEng

**Undergraduate Program Co-ordinator**
Ghanem, A., BScEng (UNB), PhD (Cornell), PEng

**I. Introduction**

The Chemical Engineering program prepares students for careers in the chemical and process industries and in a variety of related fields. These microcosms, among others, the traditional areas of environmental control, plastics and polymers, pulp and paper, instrumentation and process control, petrochemicals, petroleum and natural gas processing, and energy conversion and utilization, as well as the growing fields of biotechnology, food processing, composite materials, corrosion and protective coatings, and manufacture of microelectronic components.

The responsibilities assumed by Chemical Engineers include a wide range of activities such as research and development of novel products and processes, the design, development and operation of process plants, and management of technical operations and sales.

The curriculum is designed to provide the student with a broad background in the underlying sciences of Chemistry, Physics and Mathematics. This is then combined with a detailed knowledge of engineering principles and practice, along with a good appreciation of social and economic factors. Thorough understanding of the principles is accomplished through lecture, tutorial and laboratory activities, and extensive use is made of the departmental computing facilities. Laboratory involvement is considered an important component of the students' education. Emphasis in the laboratory is placed on team work and on the development of problem-solving skills. The Department stresses the preparation of students for independent work and the development of interpersonal skills necessary for professional engineers. Elective courses provide the student with the opportunity to obtain additional training in one of the following areas: computers and process control, biotechnology, environment, energy resources and utilization, and research and development.

In the later academic terms, students have an opportunity to work under conditions similar to those encountered in consulting and engineering organizations, particularly in the computer-aided-design and process design courses.

Research opportunities leading to the Master’s and Doctorate degrees are offered in a wide range of topics within the Department as well as in conjunction with other departments and a number of research centres on the campus. Detailed information regarding the graduate program can be obtained from the Department.

Students have the option of joining either the co-op or non co-op undergraduate programs.

**II. Curriculum and course descriptions**

Refer to sections III and IIIb, Chemical Engineering Programs in the Process Engineering and Applied Science section of this calendar.
III. Co-operative program and schedule

Refer to section E. Engineering Co-op Program, in the Engineering section of this calendar page 341.

IV. Admissions

Admission requirements are those specified by the Faculty of Engineering.

Civil and Resource Engineering

Location: "D" Building, Room D215
1360 Barrington Street
PO Box 15000
Halifax, NS B3H 4R2

Telephone: (902) 494-3960
Fax: (902) 494-3108
Email: care@dal.ca
Website: http://civilandresource.engineering.dal.ca

Dean

Lunn, L. J., BSc, MSc, PhD (Dalhousie), PEng

Department Head

Lake, C., BEng (TUNS), PhD (UWO), PEng

Professors

Ali, N. A., BSc (Baghdad), MSc, PhD (N Carolina State), PEng (Undergraduate Program Coordinator, Civil Engineering)
Cortsen, S. F., BEng, MScE (TUNS), PhD (McMaster), PEng
Guignotte, G. A., BScE (Guelph), PhD (Waterloo), PEng
Liu, L., BSc (Nankai), MSc, PhD (Peking) (Graduate Coordinator)
Liu, X., BScE, MScE (UW), PEng
Newhook, J. F., BEng, MScE (TUNS), PEng
Sahab, M. G., BSc, BEng (Summa 64), MEng, PhD (Concordia), PEng
Taheri, F., BEng, MScE, PhD (TUNS), PEng
Zou, D. H., BSc (CUMT, China), MScE, PhD (Dalhousie), PEng

Associate Professors

Garagash, D., BSc (Moscow), MS, PhD (Minnesota)
Hansen, D., BScE (Guelph), MScE (UNB), PhD (Ottawa), PEng (Co-op Advisor)
Hill, J. D., BSc, MSc (Acadia), PhD (UWO)
Jones, J., BEng (UNB), BScE (TUNS), MBSA (Winnipeg), PhD (TUNS), PEng
(Load Pathways Program Coordinator, Undergraduate Program Coordinator, Civil Engineering)
Lake, C., BEng (TUNS), PhD (UWO), PEng
Walsh, M.E., BEng (TUNS), MEng (McGill), PhD (Dalhousie), PEng

Assistant Professors

Thorburn, J., BSc (UNB), BEng (Dalhousie), PEng

Adjunct Professors

Barney, J., BEng, BSc (Dalhousie), BEng (TUNS), MScE, PhD (Dalhousie), PEng

Caineau, D., BSc, MScE (McGill), MEng (Dalhousie), PEng
El-Jabi, N., BSc (Guelph), MScE (TUNS), PhD (Ottawa), PEng (Co-op Advisor)
Forrester, D., BEng (TUNS), PhD (Dalhousie), PEng
Kasumova, J. T., BEng (Ukraine), MEng (Alberta, MBSA (Ottawa)
Kenny, S., BEng, MEng (MUN), PEng
Klaveno, J. B., BEng (UNB), MScE (McGill), PEng
Phi, N., BSc (Gothenberg), MScE (UBC), PEng
Rand, J., BSc (Acadia), BEng, PhD (Dalhousie)

Professor Emeritus

Jaeger, L. G., BA, MA (Cambridge), PhD, DSc (London), DEng (Carleton, MUN, TUNS), PEng

I. Introduction

The Department of Civil and Resource Engineering consists of the Civil Engineering Program and the Mineral Resource Engineering Program. The Department currently offers two accredited professional degree programs.
II. Program Guides

A. Civil Engineering

Year 1 and 2 follow the program that is outlined in the Faculty of Engineering section of this calendar. The two Options, Earth and Environment and Infrastructure, contain a strong common core in those aspects of engineering considered to be crucial for all civil engineering bachelor’s, irrespective of specialization. Terms 5 and 6 are the same for both Options. In Terms 7 and 8 students will have the opportunity to select some courses from a list of technical electives based on their specific interests in focus areas of Civil Engineering.

Non Co-op Program:

Year 1 Term 1 (Fall)
- CIVL 3300.03 Hydraulics
- CIVL 3830.03 Surveying & Applied Geomatics

Year 1 Term 2 (Winter)
- CIVL 3101.03 Soil Mechanics
- CIVL 3705.03 Mechanics of Structural Materials & Components

Year 2 Term 1 (Fall)
- CIVL 3310.03 Structural Systems I-Form and Analysis
- CIVL 3410.03 Construction Materials & Methods

Year 2 Term 2 (Winter)
- CIVL 3305.03 Surveying & Applied Geomatics

Year 2 Term 3 (Spring)
- CIVL 3110.03 Geotechnical Engineering
- CIVL 4341.03 Reinforced Concrete Design
- CIVL 4351.03 Design of Steel Structures
- CIVL 4801.005 Senior Project I
- CPST 3030.03 Engineering in Society II

Total of five (minimum of four) electives may be chosen from the following courses (schedule permitting):
- CIVL 4411.03 Water Distribution & Wastewater Systems
- CIVL 4440.03 Water & Wastewater Treatment
- CIVL 4450.03 Solid Waste and Landfill Engineering
- CIVL 4560.03 Special Topics in Structural Systems
- ENGM 4375.03 Risk Assessment Management
- MINE 3620.03 Petroleum Engineering

Total of one elective may be chosen from the following courses (schedule permitting):
- ARCH 3104.03 Foundations in Architectural History and Theory
- ARCH 3105.03 Architectural History and Theory – 20th Century
- ENVE 3142.01 Energy and Environment
- ENVE 4341.01 Bioclimatic Design & Bioremediation
- ENVE 4365.01 Solar Energy Utilization
- ENVE 4700.03 Geoscience Info Management
- ENGE 4300.01 Operation Research
- ENGE 4347.03 Company Operations and Management
- ENGE 4355.01 Project Management
- GERH 3230.03 Intro to Community Design

Other courses require Department approval.

Technical Electives (choose three from the list below)
- CPST 3030.03 Engineering in Society II
- CIVL 4802.025 Senior Project II
- CIVL 4430.03 Water Distribution & Wastewater Systems
- CIVL 4440.03 Water & Wastewater Treatment
- CIVL 4450.03 Solid Waste and Landfill Engineering
- CIVL 4560.03 Special Topics in Structural Systems
- ENGM 4375.03 Risk Assessment Management
- MINE 3620.03 Petroleum Engineering

Total of one elective may be chosen from the following courses (schedule permitting):
- ARCH 3104.03 Foundations in Architectural History and Theory
- ARCH 3105.03 Architectural History and Theory – 20th Century
- ENVE 3142.01 Energy and Environment
- ENVE 4341.01 Bioclimatic Design & Bioremediation
- ENVE 4365.01 Solar Energy Utilization
- ENVE 4700.03 Geoscience Info Management
- ENGE 4300.01 Operation Research
- ENGE 4347.03 Company Operations and Management
- ENGE 4355.01 Project Management
- GERH 3230.03 Intro to Community Design

Other courses require Department approval.

2. Earth and Environment Option:

Year 3 Term 5 (Fall)
- CIVL 3300.03 Hydrology
- CIVL 3710.03 Mechanics of Structural Materials & Components
- CIVL 3725.03 Construction Materials & Methods
- CIVL 3830.03 Surveying & Applied Geomatics

Year 3 Term 6 (Winter)
- CIVL 3830.03 Surveying & Applied Geomatics
- CIVL 3725.03 Construction Materials & Methods
- CIVL 3705.03 Mechanics of Structural Materials & Components
- CIVL 3505.03 Structural Systems I-Form and Analysis
- CIVL 3101.03 Soil Mechanics

Year 4 Term 7 (Fall)
- CIVL 4440.03 Water & Wastewater Treatment
- CIVL 4401.005 Senior Project II
- ENVE 4772.01 Environmental Assessment & Management

*Technical Electives (choose three from the list below)

Year 4 Term 8 (Winter)
- CIVL 4440.03 Water & Wastewater Treatment
- CIVL 4401.005 Senior Project II
- CPST 3030.03 Engineering in Society II
- CPST 3030.03 Engineering in Society II

*Technical Electives (choose three from the list below)

*Earth and Environment Option Technical Electives: Total number of technical electives must equal six.
Total of one elective may be chosen from the following courses (schedule permitting):

- ARCH 3100.03 Foundations in Architectural History Theory
- ARCH 3100.03 Architectural History Theory - 20th Century
- ENV 3412.03 Energy and Environment
- ENV 4551.03 Solar Energy Utilization
- ERTH 3500.03 Geoscientific Information Management
- IENG 4590.03 Operations Research
- IENG 4574.03 Operations Research
- IENG 4516.03 Project Management
- MINE 3520.03 Introductory Mining Engineering
- MINE 3530.03 Mineral Processing
- MINE 4710.03 Mine Excavation Systems
- MINE 4812.03 Mine Production Engineering
- PLAN 1001.03 Introduction to Community Design I

Other courses require Department approval.

NOTES:
1. One or more graduate courses may be included as technical electives in Term II; however, permission of the instructor and department is required in order to register for such courses.
2. Not all of the technical elective courses will be offered each year.
3. Many courses have pre-requisites (see section IV following). If it is felt, however, that an equivalent course of study has been taken, a waiver of the pre-requisite requirement can be sought from the instructor.
4. Some courses have co-requisites. A co-requisite can also be completed before the course in question (instead of being done concurrently).

A. Mineral Resource Engineering

Years 1 and 2 follow the common program outlined in the Engineering section of this calendar.

Non Co-op Program:

<table>
<thead>
<tr>
<th>Year</th>
<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
<th>Term 4</th>
<th>Term 5</th>
<th>Term 6</th>
<th>Term 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FREE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>FREE</td>
<td></td>
<td></td>
<td>FREE</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FREE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>FREE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FREE</td>
<td></td>
</tr>
</tbody>
</table>

Co-op Program:

<table>
<thead>
<tr>
<th>Year</th>
<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
<th>Term 4</th>
<th>Term 5</th>
<th>Term 6</th>
<th>Term 7</th>
<th>Term 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FREE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FREE</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FREE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>FREE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FREE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Year 3 Term 5 (Fall)

- CIVL 3310.03 Soil Mechanics
- CIVL 3510.03 Surveying & Applied Geomatics
- CIVL 4500.03 Operations Research for Systems Engineering
- MINE 3520.03 Introductory Mining Engineering
- MINE 3530.03 Mineral Processing
- MINE 4650.03 Mining Geology I

Year 3 Term 6 (Winter)

- MINE 3540.03 Equipment Selection & Materials Handling
- MINE 3611.03 Rock Mechanics
- MINE 4612.03 Rock Penetration & Fragmentation
- MINE 4620.03 Petroleum Engineering
- MINE 4750.03 Mining Geology II

* Choose one technical elective as listed

Year 4 Term 7 (Winter)

- CIVL 3740.03 Computations System Modelling
- CPST 3010.03 Engineering in Society II
- MINE 4711.03 Mine Ventilation & Environment Control
- MINE 4750.03 Senior Design Project I
- MINE 4850.03 Mineral Economics and Mine Product

* Choose one technical elective as listed

Year 5 Term 8 (Fall)

- MINE 4813.03 Mining and the Environment
- MINE 4835.03 Mineral Economics and Mine Product

* Choose three technical electives, two of which must be from Mineral Resource Engineering (MINE xxx), as listed below.

Technical Electives:

- CIVL 4113.03 Geotechnical Engineering
- CIVL 4410.03 Engineering Hydrogeology
- CIVL 4710.03 Construction Planning
- CIVL 4753.3 Industrial Safety and Loss
- ENV 3411.03 Environmental Health and Safety
- ENV 4770.03 Environmental Assessment Management
- ENGI 4558.03 Project Management and Control
- IENG 4574.03 Decision and Risk Analysis
- MINE 4710.03 Mine Excavation Systems
- MINE 4801.03 Advanced Topics in Rock Mechanics
- MINE 4804.03 Mining Engineering Project
- MINE 4820.03 Surface Mine Slope Stability
- MINE 4822.03 Advanced Petroleum Engineering
- MINE 4823.03 Offshore Drilling and Production
- MINE 4830.03 Advanced Mineral Processing
- MINE 4852.03 Flotation

Other approved course.

III. Course Descriptions

A. Civil Engineering Series

CIVL 3101.03: Soil Mechanics I

This course is concerned with the physical and mechanical properties of soils. It includes topics of soil chemistry and soil fabric, soil classification, compaction, hydraulic conductivity, one-dimensional and two-dimensional seepage, soil compressibility, time dependent deformation of soils, and shear strength behavior of soils. Laboratory sessions involve experimentally evaluating the engineering properties of several different soil types and the application of these results to engineering problems.

PREREQUISITE: ENGI 2300.03 or (ENGI 2102.03 and ENGI 2103.03)

FORMAT: Lecture 3 hours, lab 1 hour, tutorial 1 hour

CIVL 3200.03: Transportation Engineering.

This course commences with an introduction to Transportation Engineering in the context of planning, design and operations of urban and rural systems. The course also provides an introduction to route location with special emphasis on Canadian standards and specifications. It also includes detailed study of road design elements, vehicle motion, vehicle/pavement interaction, and principles of roadway capacity.

PREREQUISITE: CIVL 3200.03

FORMAT: Lecture 3 hours, lab 2 hours

CIVL 3300.03: Hydraulics.

Fluid mechanics principles are applied to practical hydraulic problems involving flow in closed conduits and in open channels. Topics in pipe flow include losses in pipes, pipes in series and parallel, and network analysis. Topics in open channel flow deal with classification of flows, open channels and their properties, energy and momentum principles, uniform flow, design of perennial and non- perennial channels, and gradually varied flow. These aspects are explained in lectures and validated by laboratory measurements and demonstrations.

PREREQUISITE: CIVL 3300.03

FORMAT: Lecture 3 hours, lab 3 hours
CIVL 3310.03: Engineering Hydrology.

The emphasis in this course is on quantitatively describing the physical processes in the hydrologic cycle. Such processes include precipitation, evaporation, infiltration, groundwater movement, surface runoff, as well as land surface run-off processes. A working rainfall-runoff model is developed, and by convolution it is used in a design hydrograph. The size of a detention pond, statistical hydrology, and snow hydrology are also discussed.

FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: ENGM 2101.03, ENGM 2102.03, ENGM 2103.03, CIVL 3300.03, MATH 2200.03

CIVL 3451.03: Water Quality and Treatment.

This course expands on the student’s previous experience in aqueous chemistry and fluid mechanics. The course provides an Engineering perspective on: (i) water quality analysis, specifically on the physical, chemical and biological characteristics of water; (ii) significance and interpretation of water quality properties; (iii) modeling water quality in natural and engineered systems; and (iv) water treatment systems at the introductory level.

FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: CHEM 1021.03 and CHEM 1022.03, ENGM 2101.03 EXCLUSION: PEAS 2202

CIVL 3505.03: Structural Systems I: Form and Analysis.

This course begins with a review of the analysis of frames and shear and moment in beams. Majority of the course covers the calculation of elastic deflections for statically determinate structures and various methods for analyzing statically indeterminate structures focusing on slope deflection method and moment distribution method. The application of matrix methods in computer modeling using a typical commercially available structural analysis program will be introduced. Also the concept of influence lines for moving loads on statically determinate structures will be discussed.

FORMAT: Lecture 3 hours, tutorial 2 hours
PREREQUISITE: PRVC 1280.03, ENGM 1202.045

CIVL 3515.03: Structural Systems II: Loads and Behaviour.

The objective of the course is to provide students with a solid background in the fundamentals of structural analysis of structural materials and components. The analysis includes steel, concrete and timber, for representative structures. The student will be able to size basic tension, compression and flexural elements using steel, concrete and timber, for representative structures.

FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: CIVL 3505.03, CIVL 3701.03, CIVL 3725.03

CIVL 3705.03: Mechanics of Structural Materials and Components.

The content is focused on the application of the principles of the mechanics of solids in the design and analysis of structural materials and components. Building on engineering skills gained in the first two years, the class will examine general stress analysis, failure criteria, flexure, shear, torsion, compressive buckling and plasticity as these aspects apply to structural components constructed of timber, steel, concrete and fibre-reinforced polymers.

FORMAT: Lecture 3 hours, tutorial 2 hours
PREREQUISITE: CIVL 3505.03, CIVL 3515.03, CIVL 3700.03, CIVL 3725.03

CIVL 3725.03: Construction Materials and Methods.

This course is to provide students with knowledge of residential and commercial building techniques and materials. In it, the properties and applications of common construction materials, components, and systems that relate to wood, steel, and concrete-frame structures are examined.

FORMAT: Lecture 3 hours, lab 3 hours

CIVL 3740.03: Computations and Systems Modeling.

This course introduces the application of various computational methods for solving a range of practical problems in civil engineering. Basic numerical methods for solving algebraic equations, non-linear and eigen-value problems, as well as numerical differentiation and integration are introduced. Curve-fitting and non-linear regression techniques are presented. Computational tools such as Matlab, MathCad, Excel, and Mathematica are introduced and used to analyze structural stability, the behavior of non-frames, dynamics, vibrations, and other topics of interest in infrastructure systems.

FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: ENGM 2101.03, ENGM 1041.03

CIVL 3830.03: Surveying and Applied Geomatics.

This course covers the techniques, calculations and equipment used in surveying and geomatics, as well as their applications to civil engineering. Topics include fundamentals of distance measurement and surveying, leveling, theodolite, GPS and Total Station instruments, coordinate systems and geoid deformations, Geographic Information Systems, and engineering applications of geomatics, with particular focus on remote sensed data for common civil engineering and mining construction activities. Laboratory exercises will cover the basics of surveying techniques. Building up to an exercise in combining a measured GPS data set to a pre-existing GIS database for engineering design considerations of a facility.

FORMAT: Lecture 3 hours, lab 3 hours
EXCLUSION: CIVL 0124 and CIVL 4830

CIVL 4111.03: Geotechnical Engineering.

This course is concerned with the geotechnical aspects of temporary and permanent retaining walls for infrastructure or environmental works, deep and shallow foundation, soil-pipe interaction, and design-analysis of natural cut, embankments, and earth dams. The application of these design-analysis to particular infrastructure and environmental structures are emphasized in the laboratory sessions.

FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: CIVL 3101.03

CIVL 4200.03: Transportation Systems.

This course covers urban transportation planning, transportation demand and supply, transportation management. The environmental impact of transportation systems such as noise and air pollution will be examined. Methods to measure, predict, and evaluate impact of transportation models will be covered.

FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: CIVL 3200.03

CIVL 4250.03: Highway Engineering.

This course provides introduction to road location with special emphasis on Canadian standards and road design elements. It includes a surveying workshop. The purpose of workshop is to expose students to operation and application of surveying instrumentation. It includes topics of vertical and horizontal curves, roadway design elements and classification, alignment and cross section elements, drainage and earthwork operations, highways materials and pavement design.

FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: CIVL 3250.03

CIVL 4350.03: Hydraulic Engineering.

This course deals with the application of hydraulics in civil engineering design. The topics include design of culvert systems, storage dams (gravity dams, arch dams, buttress dams, earth dams and earth-fill dams), overflow and fish passage with emphasis on design of stilling basins. Hydraulic machinery (pumps and turbines) will be discussed with an emphasis on the selection a machine for a given power application. Design of single and multiple port outfall structures for effluent disposal in rivers and in oceans will also be discussed. Regular lectures and tutorial sessions will be supplemented with expert speakers from the industry and field trips.

FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: CIVL 3250.03

CIVL 4359.03: Form and Process in Alluvial Channels.

This course will consider various aspects of fluvial geomorphology and their applications to civil engineering point-of-view. Topics to be included are: (a) hydraulics resistance based on quantitative estimates of channel roughness, regime concepts for artifical and natural rivers, uses of boundary shear stress and unit-stream power in bed-load estimations, the hydraulics and statistics of suspended sediment, numerical versus physical modelling, and a review of case histories of responses of rivers to human activity. The hydraulics of fish habitat assessment is also considered. The application of HEC-RAS to a tributary creek is done as a group project.

FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: CIVL 3300.03 and CIVL 3310.03 (minimum), CIVL 4350.03 (preferable)
CROSS-LISTING: CIVL 6359.03 EXCLUSION: CIVL 6359.03
CIVL 4410.03: Engineering Hydrogeology. This course is an introduction to the application of numerical methods in hydrogeology with a review of key definitions and hydraulic principles pertaining to flow through porous media. This is followed by consideration of well hydraulics in the context of the evaluation and management of groundwater resources. The theory and application of numerical methods are discussed in relation to simple groundwater systems, and this is followed by discussion of the chemistry of both natural and contaminated systems. 

FORMAT: Lecture 3 hours, lab 2 hours 
PREREQUISITE: CIVL 3515.03 or PEAS 2202.03 
CIVL 4440.03: Solid Waste & Landfill Engineering. This course provides students with an understanding of the types of solid waste generation, physical and chemical properties of solid waste, solid waste treatment and disposal alternatives, design and operation of a landfill (including landfill design and configuration, liner selection, liner system, leachate control and treatment, and gas collection and control system). 

FORMAT: Lecture 3 hours, lab 2 hours 
PREREQUISITE: CIVL 3101.03 
CO-REQUISITE: CIVL 3415.03 
CIVL 4515.03: Reinforced Concrete Design. This course will provide students with a basic understanding of the behaviour and analysis of reinforced concrete as a structural material, elementary skills and concepts necessary for designing a variety of common structural elements, and appropriate analysis techniques and code approximations. Current design code provisions related to flexure, shear and compression members will be reviewed, leading to practical design examples for one-way floor systems, columns, footings, and masonry containing walls. 

FORMAT: Lecture 3 hours, lab 2 hour 
PREREQUISITE: CIVL 3115.03 
CIVL 4525.03: Design of Steel Structures. This introductory design course emphasizes the behaviour and design of steel members resisting tensile, compressive, and flexural loads and simple connections of these elements. Members subject to combined loading will also be studied. Upon course completion, the student will be able to design building elements to CSA-SA15-1. Although most design examples will be based on framed buildings, many of the concepts apply equally to other types of structures, e.g., bridges, towers, and submarine halls. 

FORMAT: Lecture 3 hours, tutorial 2 hours 
PREREQUISITE: CIVL 3115.03 
CIVL 4541.03: Application of Finite Element Method in Static & Dynamic Systems. This course provides an introduction to the theory and application of the finite element method. The basic linear elasticity, principles of minimum work and energy methods will be used in developing the methodology. Students will gain practical experience, using a commercial software package, to treat a balance set of problems using classical one-dimensional stress, deformation problem static and dynamic loading systems that are of specific interest to structural engineers. 

FORMAT: Lecture 3 hours, lab 2 hours 
PREREQUISITE: CIVL 3501.03, CIVL 3701.03, CIVL 3740.03 
CIVL 4560.03: Special Topics in Structural Systems. Based on current knowledge acquired from introductory design courses, this course will explore specific advanced topics and principles of the design and analysis of the behavior of concrete, steel and composite systems. Students will study stress, deformation and load failure of components and systems in a variety of applications. 

FORMAT: Lecture 3 hours, lab 2 hours 
PREREQUISITE: CIVL 3151.03 
CO-REQUISITE: CIVL 3415.03 
CIVL 4710.03: Construction Planning. This course deals with construction administration, bidding procedures, cost controls, planning and execution of civil engineering construction projects. The course also covers planning and scheduling techniques such as CPM and PERT. The course presents basic methods of estimating construction costs, with applications to buildings, bridges, foundations, highways and earthworks. 

FORMAT: Lecture 3 hours, lab 2 hours 
CIVL 4801.005: Senior Project I. This course develops the senior project for CIVL 4802. Topics include introduction to potential senior project topics, electing a project, meeting industry representatives, client meetings, and final project planning. 

FORMAT: Lecture 3 hours, lab 2 hours 
PREREQUISITE: CIVL 3415.03 
CIVL 4802.025: Senior Project II. The objective of this course is to provide experience in the application of engineering principles to the solution of specific problems in Civil Engineering. Under the supervision of a faculty member, students execute a project that may include laboratory and/or field experiments, design work, numerical simulations, technical communications on state-of-the-art technologies, or analysis of case histories. Students prepare a formal report according to faculty standards for report preparation and make an oral presentation of their project. 

PREREQUISITE: CIVL 4801.005 
B. Mineral Resource Engineering Series 

MINE 2200.03: Introductory Geology for Engineers. This course deals with the fundamental principles of geology. Topics include mineralogy, rock-forming processes, weathering, erosion, groundwater, glaciation, mass wasting, running water, deserts, shorelines, geologic structures, tectonics, and Earth’s interior. The links between geology, engineering and the environment are explored through case studies. Laboratory exercises covering the identification and interpretation on minerals, rocks, landforms (using topographic maps and remote sensing images) and geologic map structures are an important part of the class. 

FORMAT: Lecture 3 hours, lab 3 hours 
EXCLUSION: MINE 3500.03; ERTH 1090.03 and ERTH 1090.05 
MINE 3520.03: Introductory Mining Engineering. This course is an introduction to mineral industry and mining engineering. Emphasis is placed on unit operations, equipment and surface and underground mining methods. Summaries of the national and global mineral industries, innovative techniques and practices, and the relationships between mining and mineral processing are included. Laboratory experiments are included to simulate some of the processes used in the extractive and concentrating industries. 

FORMAT: Lecture 3 hours, lab 3 hours 
PREREQUISITE: MINE 2200.03 
MINE 3530.03: Mineral Processing. This course is concerned with the principles of unit operations employed in the physical processing of minerals; examination of mineral characteristics on which mineral separation methods are based; liberation of minerals, crushing, grinding, screening and classification. Mineral separation methods include: gravity, dense medium, magnetic and high tension separations, rod-mill sorting, flotation and selective flocculation. Laboratory tests, their interpretations, and assessment of separation performance are covered. 

FORMAT: Lecture 3 hours, lab 3 hours 
PREREQUISITE: MINE 2200.03.

Civil and Resource Engineering 349
MINE 3600.03: Equipment Selection and Materials Handling.
This course deals with mining equipment, analysis of parameters influencing the performance of equipment, and equipment selection. Included are cost analyses and estimation, unit costs, compressed air and hydraulic power systems, applications in mining, pump selection, materials handling systems in underground and surface operations, and storage bins.
FORM A: Lecture 3 hours, lab 2 hours

MINE 3605.03: Mining Geology I.
This course covers the topics of mineralogy, geologic structures, petrology of igneous, sedimentary and metamorphic rocks and ore processes. Emphasis is placed on the relationships between these topics and mining engineering. Laboratory exercises and assignments cover descriptive analysis, geologic maps and sections, stereographic projection and mineral miscibility.
FORM A: Lecture 3 hours, lab 3 hours
PREREQUISITE: MINE 2200.03

MINE 3611.03: Rock Mechanics.
Concepts of mechanical behavior and intact strength properties of rock masses are discussed. Classification systems and failure criteria for rocks are described. The principles of engineering design for underground and surface mine structures are covered. Stereographic projections and numerical methods are used to analyze surface and underground rock stability. Rock mechanics instrumentation is discussed. Laboratory sessions cover sample preparation and rock testing.
FORM A: Lecture 3 hours, lab 3 hours
PREREQUISITE: MINE 3605.03

MINE 3612.03: Rock Penetration and Fragmentation.
This course presents the principles and theories of rock drilling and blasting in both underground and surface mining applications. It covers the properties of explosives and the principles for selection of explosives for different situations. The transportation methods, loading techniques and priming procedures for explosives are discussed. Current trends in drilling and blasting practices are considered as well as controlled blasting and blast monitoring methods. State-of-the-art techniques in rock penetration and fragmentation are presented.
FORM A: Lecture 3 hours

MINE 3620.03: Petroleum Engineering.
This course is designed to provide a comprehensive overview of the engineering aspects of the petroleum industry. Similarities between mining and petroleum engineering are highlighted. Major topics include the fundamentals of petroleum engineering, exploration and development. Students will use the provided data to create ore bodies with information on site description, property rights, stratigraphy and structure, and drillhole data are provided. Mineral deposit is outlined by exploration together with best practices for evaluating deposits, including phase failure, waste failure, topping, and rotational failure.
FORM A: Lecture 3 hours, lab 2 hours
PREREQUISITE: MINE 3605.03, MINE 3620.03
EXCLUSION: MINE 4803.03

MINE 4706.03: Mining Geology II.
The Physical characteristics and origin of the main types of mineral deposits are covered. Individual mineral deposits are described in terms of their mineralogy, rock types, structures and geologic factors affecting mining engineering. Assignment and laboratory exercises concentrate on the three-dimensional analysis of mineral deposits using band specimens, maps, sections, structure contours and modelling of reserves. Case studies are covered in assigned readings.
FORM A: Lecture 3 hours
PREREQUISITE: MINE 3605.03, MINE 3620.03
EXCLUSION: MINE 4803.03

MINE 4710.03: Mine Excavation Systems.
This course deals with several specialized mining topics related to mine excavation including mine drainage in underground and surface operations, tunneling and shaft sinking equipment and techniques, mining related soil mechanics, pressure grouting, ground freezing and mine backfilling.
FORM A: Lecture 3 hours, lab 2 hours

MINE 4711.03: Mine Ventilation and Environment Control.
This course presents the main principles of total mine air conditioning: air quality, air quantity, and temperature-humidity control in underground mines. Health hazards from mine dusts, gases, radon, and heat mines are discussed. Design of airflow in single openings, circuit analysis, and ventilation network design are studied using manual and computer-based techniques. Temperature-humidity control systems design is discussed. Mine illumination and noise control are studied as part of the total mine environment.
FORM A: Lecture 3 hours, lab 2 hours

MINE 4750.03: Senior Design Project I.
This is the first part of a two-part senior project. Methods of mineral exploration are introduced. Methods of resources/reserves estimation are discussed. Surface and drillhole data are provided. Mineral deposit is outlined by exploration together with information on site description, property rights, geology, and structure. Students will use the provided data to create ore bodies and estimate the reserves. Industrial software will be used to complete the project.
FORM A: Lecture 2 hours, lab 2 hours
EXCLUSION: MINE 3520.03, MINE 3605.03 and MINE 4706.03

MINE 4801.03: Advanced Topics in Rock Mechanics.
This course deals with several generic topics in rock mechanics related to ground stability control in surface and underground mines. It covers ground failure, numerical modeling, and back-analysis techniques in mining engineering. Theory and state-of-the-art of relevant techniques are discussed.
FORM A: Lecture 2 hours, lab 2 hours
PREREQUISITE: MINE 3611.03 or permission by instructor

MINE 4815.03: Mining and the Environment.
This course covers environmental practices, problems and solutions in the mineral industry. Topics include exploration, reclamation, mine closure, acid rock drainage, surface subsidence, nuclear waste disposal and coal mine emissions. Case studies are used to highlight these topics. Class participation is emphasized through oral and written presentations.
FORM A: Lecture 3 hours, lab 2 hours
PREREQUISITE: MINE 2200.03 and MINE 4706.03

MINE 4816.03: Mining Engineering Project.
This project allows interested students to investigate a mining topic, which may also be oriented towards geology, mineral processing, environmental issues, or petroleum engineering. This topic must be original and acceptable to the department. A detailed written report of the investigation is required, which is evaluated by two professionals, one of whom is the student advisor.
FORM A: Lab 3 hours

MINE 4820.03: Surface Mine Slope Stability Analysis.
This course deals with the fundamentals of slope stability analysis in surface mining. Geometric and geotechnical parameters are introduced. Laboratory exercises focus on slope stability analysis using numerical methods, case studies are used to discuss practical problems.
FORM A: Lecture 3 hours, lab 2 hours
PREREQUISITE: MINE 3611.03 or MINE 3520.03

MINE 4821.03: Petroleum Reservoir Engineering.
This course discusses the theory and calculations in petroleum reservoir engineering. Major topics include petroleum composition, formation, migration and trapping mechanisms, classification and properties of reservoir rocks and fluids, fluid flow through porous media, phase behaviour diagrams, reservoir energy and recovery mechanisms, reservoir evaluation, as well as geological and reservoir considerations in drilling, and production engineering. An introduction to petroleum exploration methods, and data interpretation techniques is also included.
FORM A: Lecture 3 hours, lab 2 hours
PREREQUISITE: MINE 3611.03 or MINE 3520.03

MINE 4822.03: Advanced Petroleum Engineering.
This course is an advanced study of petroleum reservoir engineering, drilling and development. Topics include analysis and prediction of oil and gas reservoir performance under a variety of production methods, theory and practice of well testing and pressure analysis techniques, state-of-the-art well planning, drilling optimization, enhanced recovery mechanisms, displacement theory and modelling. Students will have to complete a term project dealing with one of these topics.
FORM A: Lecture 3 hours, lab 2 hours
EXCLUSION: MINE 3620.03, MINE 4803.03
CROSS-LISTING: MINE 4803.03

350 Civil and Resource Engineering
MINE 4823.03: Offshore Drilling and Production.

This course is oriented toward the practical applications of offshore drilling, production and completion technology in the ocean environment. Emphasis is placed on the types, applications and limitations of offshore rigs, platforms and subsea production systems. The technical aspects of offshore islands, breakwaters, safety, and fire protection, loading and transportation systems are also covered. The decision making process based on economics and developing technology regarding offshore field development and production is presented as a case study.

FORMAT: Lecture 1 hour, lab 2 hours
PREREQUISITE: MINE 3620.03, MINE 4821.03
CROSS-LISTING: MINE 6009.03

MINE 4830.03: Advanced Mineral Processing.

The objective of this course is to teach how unit operations of mineral processing may be integrated into overall plant operation. The topics considered are: the influence of ore characteristics on the choice of process, concentration methods applicable to various ores with reference to flow diagrams and operations in existing concentrators, basic principles of mineral processing plant design and development of a process flow sheet of a plant based on laboratory test work.

FORMAT: Lecture 2 hours, lab 3 hours
PREREQUISITE: MINE 3530.03

MINE 4832.03: Flotation.

The course provides detailed study of flotation and is designed for students who intend to work in mineral processing or related fields. The topics covered are: interfaces involved in a flotation system, interfacial energies, contact angle; electrical double layer effects; stability of suspensions; adsorption mechanisms; collectors, others, activators and depressants; modulation of collectors; froth stability; fines entrainment in froth lamellae; flotation kinetics; flotation machines; flotation of sulphides, oxides, salines and nonmetallic minerals, and flotation circuit design.

FORMAT: Lecture 2 hours, lab 3 hours

MINE 4835.03: Mineral Economics and Mine Production.

Major topics in Mineral Economics include the influence of mineral industry on the economy and mineral policy, marketing of minerals, price mechanisms, mine project evaluations and financing. Mine Production will cover topics on mine management, techniques to increase mine productivity, operating units analysis, mine maintenance, production scheduling and optimization.

FORMAT: Lecture 3 hours, tutorial 3 hours
PREREQUISITE: MINE 3620.03
EXCLUSION: MINE 4713.03 and MINE 4812.03

MINE 4850.03: Senior Design Project II.

This is the second part of the two-year senior design project. Based on the work completed in part one, students, working in groups, will select proper mining machines; flotation of sulphides, oxides, salines and nonmetallic minerals, and flotation circuit design. /...

MINE 4871.03 and Completion of all courses prior to Term II in the program. Exception may only be made to those with proven knowledge and industrial experience.

EXCLUSION: MINE 4811.03

Civil Engineering

Location: Section Campus, 33213
1500 Barrington Street
PO Box 13000
Halifax, NS B3H 4R2

Telephone: (902) 494-3241
Fax: (902) 494-1108
Email: care@dal.ca

Dean
Lun, L. J., BSc, MSc, PhD (Dalhousie), PEng
Department Head, Civil and Resource Engineering
Lake, C., BEng (TUNS), PhD (UWO), PEng

Undergraduate Program Co-ordinator
Aki, N. A., BSc (Bughal), MSc, PhD (N.Carolina State), PEng

I. Introduction

Civil engineering deals with the design, construction, and maintenance of the infrastructure of human civilization. Civil engineers are engaged in addressing two fundamental questions. First, how do we protect our society and its infrastructure from the impacts of the natural environment? Second, what are the impacts of society and its infrastructure on our natural environment? The infrastructure considered may be at the feasibility or the design stage, or already in existence.

First, humans need protection from the elements to thrive on this planet. With the growth of centers of population and highly organized societies, the need for very diverse kinds of ‘shelter’ has also dramatically increased – now routinely including hospitals, schools, skyscrapers, factories, and theatres. Cities and other centers require energy and must be connected, giving rise to the need for such ancillary infrastructure as hydro-dams, road networks, bridges, and airports. The results of the design work of the civil engineer are therefore quite visible and a source of enduring pride. However, values sometimes collide with our infrastructure, striking it with hurricanes and ice storms. Even if the basic designs are sound, a significant maintenance effort by engineers who are knowledgeable about the basis for the original designs is implied.

Second, Civil engineers must recognize that humans are biological entities that consume resources and generate waste. They need water, they generate wastewater. They buy consumer goods, they generate solid waste. How can we ensure that our water is pure, and that it stays pure? How can we ensure that the waste from our cities is handled in such a way that damage to the environment and risks to our own health are minimized, or perhaps even nullified? Nature metes out drought and heat, floods and freezing temperatures. How can we prepare society for such eventualities? The fact that our water and other planetary resources are also finite, can be badly or well-managed, and have been abused in the past all raise additional questions and endeavors that come under the purview of civil engineering. That the undergraduate civil engineering program at Dalhousie University has two options (the Infrastructure Option and Earth and Environment Option) is a reflection of the long-standing relevance and importance of the role of Civil engineers in addressing the above questions.

Although civil engineering is only one among many engineering disciplines available at Dalhousie, as an applied science it is characterized by exceptional technical diversity, great breadth and depth of subject matter, and a propensity for proactively addressing the practical needs of society. It is therefore natural that a BEng in civil engineering is an excellent way to start ‘life in the universe’. It is often used by our graduates as a launching pad for post-graduate studies in very diverse modes of study. Civil engineers are found in all levels of government, in private consulting companies, in public utilities, in global enterprises, and in a wide range of fields that has included technology management, business administration, and even biomedical engineering.
The Department of Civil and Resource Engineering has about 60 graduate students. They are involved in a wide range of projects that will affect engineering practice. Our experienced and diversely trained faculty members therefore have many research outcomes upon which they can draw when coming to the classroom or the laboratory and in doing so are eminently able to keep the undergraduate program current and modern.

A. Infrastructure Option
In this option, the following aspects of civil engineering are emphasized: structural engineering and design, materials of construction (steel, concrete, timber, masonry, asphalt, fibre reinforced polymers), transportation engineering, construction management, and soil mechanics.

B. Earth and Environment Option
In this option the following aspects of civil engineering receive some emphasis: environmental engineering, water and wastewater treatment, water resources and hydrogeology, geo-environmental engineering, and waste management.

II. Curriculum and course descriptions
Refer to sections IIA and IIIA, Civil Engineering Program, in the Civil and Resource Engineering section of this calendar.
I. Introduction
No other branch of engineering can claim to have such an impact on modern society as Electrical and Computer Engineering. The case, speed and precision by which electrical energy and electrical signals can be transmitted, transformed and controlled has influenced not only the daily life of people, but has also changed the course of many other disciplines. Over only a few decades, Electrical and Computer Engineering has grown to a multi-branched discipline with significant applications in the areas of power systems, communication systems, microelectronics, photonics, and computers. This rapid growth, coupled with major advances in technology and material science, has made the field very dynamic, and poses a challenge to the student, to the educator and to the practicing Electrical and Computer Engineer for the breadth of its activities.

The Electrical and Computer Engineering curriculum is based on the physical and mathematical principles which constitute the unchanging foundation of the discipline. Courses apply these foundational principles to state-of-the-art applications within specialized areas of the field. In the final year, technical elective courses are provided to enable the student to obtain a deeper, more detailed understanding of current technology in a field of interest. Technical electives may also be chosen from listed courses offered by other Departments. Also during the final year the student, usually in teams of two, work on a project requiring the application of knowledge to a realistic engineering problem. The projects are supervised by professionals in local industrial and research facilities who then provide supervision in conjunction with an assigned Faculty Advisor. Laboratory sessions form an integral part of most Electrical and Computer Engineering courses. These sessions are conducted in laboratories housed in C Building.

Students enrolled in the Electrical and Computer Engineering Degree Programs may take part in Co-Operative Education where they can apply for up to three four-month work placements in industry. Students participating in the Co-op Program will require two years and four months to complete their degree while students not in the Co-op Program can finish in one year and eight months.

Students participating in our program may pursue either the Electrical or the Computer options as listed below.

II. Degree Programs
A. Electrical Engineering Option

Years 1 and 2 follow the core program outlined in the Engineering section of this calendar.

Term 5 (Fall)
- ECED 3003.03 Networks & Systems
- ECED 3201.03 Introduction to Electronics
- ECED 3204.03 Microprocessors
- ECED 3500.03 Electromagnetic Fields
- ECED 3501.03 Signal Analysis
- MENG 3320.03 Data Structures and Numerical Methods

Work Term 1 (Winter)
- ECED 3101.03 Power Systems I
- ECED 3202.03 Analog Electronics
- ECED 3300.03 Electromagnetic Waves and Propagation
- ECED 3311.03 Communication Systems
- ECED 3600.03 Modern Control Systems
- ECED 3901.03 Electrical Engineering Design II

Term 6 (Summer)
- ECED 4002.03 Digital Signal Processing
- ECED 4513.03 Communication Networks
- ECED 4502.03 Digital Control Systems
- ECED 4901.03 Senior Year Project I
- Technical Elective

B. Computer Engineering Option

Students follow the Electrical Engineering program for Terms 1 to 3. In Year 2, Term 4, the student starts the Computer Engineering program.

Term 5 (Fall)
- ECED 3003.03 Networks & Systems
- ECED 3201.03 Introduction to Electronics
- ECED 3204.03 Microprocessors
- ECED 3401.03 System Analysis
- ECED 3501.03 Signal Analysis
- MENG 3320.03 Data Structures and Numerical Methods

Work Term 1 (Winter)
- CSCI 3120.03 Operating Systems
- ECED 3202.03 Analog Electronics
- ECED 3403.03 Computer Architecture
- ECED 3511.03 Communication Systems
- ECED 3600.03 Modern Control Systems
- ECED 3901.03 Electrical Engineering Design II

Term 6 (Summer)
- CSCI 3120.03 Operating Systems
- ECED 4404.03 Computer Networks & Communications
- ECED 4513.03 Communication Networks
- ECED 4900.03 Senior Year Project I
- Humanities Elective
- Technical Elective

C. Co-op Program

The schedule for the cooperative education program includes eight study terms and three work terms, as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Term</th>
<th>Fall</th>
<th>Winter</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Study Term 1</td>
<td>Study Term 2</td>
<td>FREE</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Study Term 3</td>
<td>Study Term 4</td>
<td>FREE</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Study Term 5</td>
<td>Work Term 1</td>
<td>Study Term 6</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Work Term 2</td>
<td>Study Term 7</td>
<td>Work Term 3</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Study Term 8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Electrical and Computer Engineering 353
### D. Non-Co-op Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Term</th>
<th>Fall</th>
<th>Winter</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Study Term 1</td>
<td>Study Term 2</td>
<td>FREE</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Study Term 3</td>
<td>Study Term 4</td>
<td>FREE</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Study Term 5</td>
<td>FREE</td>
<td>Study Term 6</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Study Term 7</td>
<td>Study Term 8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### E. Technical Electives

- **ECED 4071.03** Analog Filter Design
- **ECED 4082.03** MOS Switched-Capacitor Circuits
- **ECED 4130.03** Electric Power Systems II
- **ECED 4140.03** Power Systems III
- **ECED 4200.01** IC Design and Fabrication
- **ECED 4550.01** Optical Electronics
- **ECED 4621.03** Technology and Applications of Fiber Optics
- **ECED 4660.01** Communications Electronics
- **ECED 4904.03** Digital Transmission Theory
- **ECED 4970.03** Biomedical Engineering

### III. Course Descriptions

**ECED 2000.03: Electric Circuits.**

This is an introductory course in electric circuit analysis. The material covered starts with a review of the fundamental circuit variables such as voltage, current, charge, power and energy. Kirchhoff's laws are introduced and developed into node and loop analysis techniques. Terminated behavior and circuit equivalence including Thévenin and Norton circuits are covered. Analysis with controlled sources and energy storage elements is developed including steady state and transient response for first order networks. Phasor and sinusoidal steady state are introduced. Students are introduced to circuit simulation tools such as pspice.

**PREREQUISITE:** MATH 2203.01, PHYS 1205.01 or equivalent

**ECED 2001.03: Circuit Analysis.**

This course covers advanced circuit analysis techniques, starting with sinusoidal excitation. The concepts of phases and complex impedance are fully developed. Mutual inductance and magnetically coupled coils are used to introduce transformer behavior and performance. Real and reactive power flow is covered before the introduction of balanced three phase circuits for power distribution. Symmetrical components are introduced as a means of dealing with unbalanced networks. The concepts of grounding and harmonics are also introduced.

**PREREQUISITE:** MATH 2203.01, PHYS 1205.01 or equivalent

**ECED 2200.03: Digital Circuits.**

This course includes an introduction to: Boolean algebra, encoders, decoders, shift registers, asynchronous and synchronous counters, together with timing considerations. Design of asynchronous circuits, synchronous sequential circuits, and finite state machines, is covered. Karnaugh mapping techniques and state tables and diagrams are taught. Programmed logic is introduced. Contemporary computer aided design and analysis software is used throughout the course.

**PREREQUISITE:** ECED 2000.03

**ECED 3101.03: Power Systems I.**

This course presents the development of the models of each of the components making up a power system including: transformer behavior (power, control and intertransient transformer models); transmission line elements (transmission line behavior and distributed parameter); power system protection; power system stability (steady state and transient stability) and the application of these models to power system planning and operation. The physical models are compiled to present network models that can be used to study power system operation. Load flow is discussed as well as fault estimation and circuit protection.

**FORMA T:** Lecture 3 hours, lab/tutorial 3 hours

**PREREQUISITE:** ECED 2001.03

**ECED 3201.03: Introduction to Electronics.**

The course gives an introduction to semiconductor physics. The theory of operation of semiconductor diodes, bipolar junction transistors (BJTs), and junction and metal oxide field effect transistors (MOSFETS), is covered in detail. The analysis and design of diode, BJT, and MOSFET circuits is covered including voltage multipliers, voltage regulators, and low frequency small signal amplifiers. Contemporary computer aided design and analysis software is applied to the microelectronic circuits.

**FORMA T:** Lecture 3 hours, lab/tutorial 3 hours

**PREREQUISITE:** ECED 2001.03

**ECED 3202.03: Analog Electronics.**

This course covers behaviors of real op-amps, BJTs and FETs in high-frequency and multistage applications. Topics include linear and non-linear op-amp circuits; current mirrors, active loads and biasing; multistage amplifier design feedback in amplifiers; high-frequency narrow-band amplifier tuning, coupling and matching; crystal, resonant, phase-shift and oscillation circuits, waveforms; generation; class A, AB, B and D power amplifier; voltage regulator design; harmonics; design of MOSFET linear control circuits and pulse-width modulators, in addition, filtering, noise and distortion are introduced.

**FORMA T:** Lecture 3 hours, lab/tutorial 3 hours

**PREREQUISITE:** ECED 3001.03 and ECED 3201.03

**ECED 3204.03: Microprocessors.**

This course introduces a currently available microprocessor system. Topics include microcontrollers as a type of microprocessor, microcontroller architecture, address, data and control busses, instruction set, allocation of internal memory modules, use of decoders, latches, flip-flops and other elements of a microprocessor system, CPU bus cycle, cycle-by-cycle execution, the timing diagrams, I/O, interrupts, interrupts and the interrupt control, asynchronous serial communication, RS-232 standard, parallel port interfacing, handshaking protocols, timers, time functions, interrupts, interrupt priority, assembly programming, software development and debugging.

**FORMA T:** Lecture 3 hours, lab/tutorial 3 hours

**PREREQUISITE:** ECED 2200.03

**ECED 3300.03: Electromagnetic Fields.**

This course forms an introduction to basic electromagnetic principles upon which Electrical Engineering is based. The laws underlying the theory are presented in integral and differential form. A classical development of electrodynamics, steady state current, and magnetostatics will lead to Maxwell's equations. The theory developed is applied to calculating circuit parameters such as resistance, capacitance, and inductance for any electronic or magnetic structure.

**FORMA T:** Lecture 3 hours, lab/tutorial 2 hours

**PREREQUISITE:** ENGM 2105.01

**ECED 3301.03: Electromagnetic Waves & Propagation.**

This course presents the basic theory and applications of propagation of electromagnetic waves. Major topics include: time-varying Maxwell's equations, electromagnetic force, electromagnetic spectrum, transmission of plane waves, reflection and refraction, polarization, radiation, transmission line theory, standing wave ratio, Smith Chart, impedance matching, guided wave structures, modes and cut-off frequencies.

**FORMA T:** Lecture 3 hours, lab/tutorial 2 hours

**PREREQUISITE:** ECED 3300.03

**EXCLUSION:** ECED 4500.03

**ECED 3401.03: System Analysis.**

Requirement analysis, specifications, concepts of transforming an ill-defined problem into a set of specifications. Functional decomposition and data dictionaries. Top down structured and object oriented analysis techniques. Laboratory and assignment work will address the analysis of relatively complicated systems using the different techniques.
Undergraduate book Page 355 Wednesday, March 12, 2014 12:03 PM

ECED 3403.03: Computer Architecture. 
This course deals with design methods, processor instruction sets, and memory systems. The student will study design methods, implementation techniques, modeling techniques, and performance analysis. Reduced instruction set architectures (RISC), pipelining, pipeline hazards, and their implementation for modern high-speed applications will be studied. The student project will require a team to design and implement (or simulate) a RISC architecture.
FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: ECED 2200.03
EXCLUSION: ECED 2400.03

ECED 3500.03: Signal Analysis. 
Transformation theory and frequency-domain representation of continuous-time signals including Fourier series, Fourier transform and Laplace transformation. Discrete-time signals, sampling theorem, aliasing and frequency domain representation of discrete-time signals including the $\delta$-transformation. Introduction to communication systems, exponential and sinusoidal-amplitude modulation.
FORMAT: Lecture 3 hours, tutorial 1 hour
PREREQUISITE: ENMG 1041.03 and ENMG 2202.03 and ENMG 2101.03

ECED 3511.03: Communication Systems. 
This course examines the principles of communication theory as applied to the transmission of information in the presence of noise. Statistical underpinnings of communication system design are presented for analog and digital modulation schemes with the emphasis on binary and M-ary signaling at the baseband and passband. Powerbandwidth efficiency tradeoffs are discussed. The course combines a rigorous development of the fundamental principles in transmitter/ receiver design with a realistic treatment of modulation and demodulation methods. The laboratory component is devoted to the design and implementation of a communication system.
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: ECED 3500.03

ECED 3600.03: Modern Control Systems. 
This course deals with control systems analysis and design aspects. Techniques for analyzing the performance of analog systems are introduced. Emphasis is on the use of the Laplace transform and state space techniques in evaluating system performance indicators including stability. Tools introduced include frequency response methods, and the root locus. Practical examples involving design of controllers for small systems to address desired response are discussed.
FORMAT: Lecture 3 hours, lab/tutorial 2 hours
PREREQUISITE: ENMG 3000.03
EXCLUSION: ECED 4600.05

ECED 3901.03: Electrical Engineering Design II. 
This course deals with specific aspects of high-performance products and systems. Students gain experience in the design of complex systems. The course covers a design project that is based on an original design solution to a specific problem. The student will combine both classroom and lab work. The classroom component will use case studies, design reviews and conventional lectures. The lab component will be devoted to the design and implementation of a solution to the student challenge.
FORMAT: Lecture 2 hours, lab 3 hours
PREREQUISITE: ECEG 3001.03

ECED 4071.03: Analog Filter Design. 
This course deals with the theory and design of active filters, for audio-frequency applications, using op amps. It consists, basically, of two phases. Phase 1 deals with the realization of a given transfer function using cascade of first and/or second order RC-circuit filters. In phase II, the transfer functions of filters are studied in combination with frequency-response approximations such as Butterworth, Chebyshev, Inverse-C (beavley, Cauer (or Elliptic)) and Bessel-Thompson. The design of Monolithic MOS switched-capacitor filters is also introduced.
FORMAT: Lecture 3 hours, tutorial 2 hours
PREREQUISITE: ECED 3500.03 and ECED 3102.03

ECED 4082.03: MOS Switched-Capacitor Circuits. 
Metal-oxide-semiconductor (MOS) switched-capacitor (SC) techniques are the most common approach for realizing analog-to-digital conversion due to their high degree of accuracy and linearity. This course deals with the theory, analysis and design of SC circuits. It covers the following topics: fundamentals of sampled-data systems, MOS technologies, MOS devices for linear analog integrated circuits, Parameter-capacitance, systematic analysis techniques, basic building blocks of SC filters, synthesis and design of SC filters.
FORMAT: Lecture 3 hours, lab/tutorial 2 hours
PREREQUISITE: ECEG 3501.03
EXCLUSION: ECEG 3500.03

ECED 4102.03: Electromechanics. 
This course covers the principle of electromechanical energy conversion and electrical motion. A review of magnetic field behavior leads to magnetic circuit calculations and permanent magnet circuit behavior. Energy balance principles are used to develop force and torque relationships for many electromechanical applications including relays, motor movements and motor operation. Basic principles of motor operation such as rotating magnetic fields, efficiency and machine ratings are given as a prerequisite to an in-depth presentation of AC and DC motor behavior. Emphasis is placed on motor control and application.
FORMAT: Lecture 3 hours, lab/tutorial 3 hours
PREREQUISITE: ECED 3001.03 or ECED 3101.03
EXCLUSION: ECEG 3100.03

ECED 4130.03: Electric Power Systems II. 
FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: ECED 4101.03

ECED 4140.03: Power Systems III. 
The course covers topics such as load curves and forecasting, characteristics and peak demand forecasting, weather-load models, discounted multiple regression and ARMA models, introduction to power system reliability evaluation, generating capacity reserve evaluation, contingency evaluation and an introduction to long-range power system expansion planning packages and production costing.
FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: ECED 2200.03 and ECED 4201.03
RESTRICTION: Include: Major - Ceng

ECED 4350.03: Optical Electronics. 
This course deals with the fundamental science of light and detection of light in semiconductor materials as they pertain to optoelectronic devices such as light emitting devices, laser diodes, photodiodes, and light detectors. Major topics include: review of semiconductor properties; photo detectors such as PIN, photodiodes and Avalanche photodiodes (APDs); spontaneous emission and stimulated emission in light emitting diodes (LEDs); and optical gain in Laser diodes (LDs). Typical materials, structures, characteristics and parameters of these devices are discussed with relation to various applications in fiber optics, consumer and computer products.
FORMAT: Lecture 3 hours, tutorial 2 hours
PREREQUISITE: ECED 2200.03
EXCLUSION: ECED 2400.03

ECED 4402.03: Real Time Systems. 
This course covers system analysis and design techniques and then addresses real time implementation methods. Real time operating system (RTOS) requirements are covered. Topics include message queues, resource sharing, priority assignments, event flags, interrupts, memory allocation, and typical RTOS configurations. Examples in engineering and networking will be discussed. A significant design and implementation project will be undertaken.
FORMAT: Lecture 3 hours, lab/tutorial 3 hours
PREREQUISITE: ECED 4501.03 or ECED 3204.03, and CSCI 3120.03

ECED 4404.03: Computer Networks & Communications. 
Network architecture and topology, ISO, physical and data link layers, LANS, ATM, routing, quality of service, and emerging technologies. The laboratory and assignments will require implementation of network software and evaluation of current technologies.
FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: ECED 3400.03 or ECED 3204.03

Electrical and Computer Engineering 355
ECED 4421.03: Technology and Applications of Fiber Optics.
This course deals with the basic principles and applications of optical fiber communication systems. Topics include: the realization of passive components for high frequency applications; small signal amplifier design and characterization employing s-parameter techniques; large signal circuit design; realization and analysis employing voltage series and harmonic balance nonlinear analysis procedure; the realization and characterization of non-linear circuits such as high efficiency power amplifiers, oscillators, frequency converters, and modulator/demodulator subsystems; the integration of appropriate subsystems into analog and digital terrestrial and space borne radio communication systems.

ECED 4460.03: Communications Electronics.
This course provides an introduction to the theory and design of electronic circuits for communications systems. Topics include: the realization of passive components for high frequency applications; small signal amplifier design and characterization employing s-parameter techniques; large signal circuit design; realization and analysis employing voltage series and harmonic balance nonlinear analysis procedure; the realization and characterization of non-linear circuits such as high efficiency power amplifiers, oscillators, frequency converters, and modulator/demodulator subsystems; the integration of appropriate subsystems into analog and digital terrestrial and space borne radio communication systems.

ECED 4402.03: Digital Signal Processing.
Topics covered will include detailed analysis of channel and source coding techniques with derivation of bit error rates for various modulation schemes and power-bandwidth efficiency trade-offs. Design of optimum receivers is examined. Power Spectral Density of communications waveforms is presented. Channel fading and performance degradations are discussed. Information Theory issues are examined. Teletraffic analysis is presented for both circuit and packet switched networks. ECED 4421.03: Technology and Applications of Fiber Optics.

ECED 4404.03: Digital Transmission Theory.
Topicals covered will include detailed analysis of channel and source coding techniques with derivation of bit error rates for various modulation schemes and power-bandwidth efficiency trade-offs. Design of optimum receivers is examined. Power Spectral Density of communications waveforms is presented. Channel fading and performance degradations are discussed. Information Theory issues are examined. Teletraffic analysis is presented for both circuit and packet switched networks. ECED 4421.03: Technology and Applications of Fiber Optics.

ECED 4513.03: Communication Networks.
This course focuses on the fundamentals of data communication networks. It covers the layered architecture of packet networks and their network elements (switches, routers, bridges). The protocols used to enable transmission of packets through the Internet are examined in detail. Analysis and design of protocols to enhance the efficiency of data transmission in the context of Internet technology is also presented. Students will gain an appreciation of implementing voice over IP, DVD and WiFi transmissions.

ECED 4501.03: Biomedical Engineering.

ECED 4900.03: Senior Year Project I.
This course develops the use of fundamental theory in the detailed design of a suitable project selected by the student in consultation with the department. The student is expected to take the project from its preliminary stage through the various design stages to the ultimate completion of the design, which include a detailed report with calculations, drawings, possibly a model and verbal presentation.

ECED 4901.03: Senior Year Project II.
This course is a continuation of Senior Year Project I leading to a final report and formal presentation. The presentation will be made to fellow students and departmental staff members.

ECED 4900.03: Senior Year Project I.
This course develops the use of fundamental theory in the detailed design of a suitable project selected by the student in consultation with the department. The student is expected to take the project from its preliminary stage through the various design stages to the ultimate completion of the design, which include a detailed report with calculations, drawings, possibly a model and verbal presentation.

ECED 4901.03: Senior Year Project II.
This course is a continuation of Senior Year Project I leading to a final report and formal presentation. The presentation will be made to fellow students and departmental staff members.
II. Course Descriptions

ENGM 1011.03: Engineering Mathematics I.
This course covers functions, limits, continuity, differentiation and integration of polynomials, exponential, logarithmic and trigonometric functions, product, quotient and chain rule applications of differentiation to graphing, maximization and minimization problems and related rate problems, definite and indefinite integrals, and the fundamental theorem of Calculus.

ENGM 1012.03: Engineering Mathematics II.
This course covers applications of integration including areas, volumes, moments, pressure work, techniques of integration, numerical integration, length of curves, surfaces of revolution, parametric equations, polar coordinates, sequences and series, and Taylor series.

ENGM 1041.03: Applied Linear Algebra.
This course covers geometry vectors in three dimensions, dot product, cross product, lines and planes, complex numbers, systems of linear equations, matrix algebra, matrix inverses, determinants, Cramer's rule, introduction to vector spaces, linear independence and bases, rank, linear transformations, orthogonality and applications, Gram Schmidt algorithm, eigenvalues and eigenvectors.

This course covers first order linear and non-linear differential equations, differential equations of higher order with constant coefficients, applications to Engineering problems. Laplace transforms, periodic functions, applications of Laplace transforms to linear systems, Fourier Series, the line spectrum.

This course covers geometric vectors in three dimensions, dot product, cross product, lines and planes, complex numbers, systems of linear equations, matrix algebra, matrix inverses, determinants, Cramer's rule, introduction to vector spaces, linear independence and bases, rank, linear transformations, orthogonality and applications, Gram Schmidt algorithm, eigenvalues and eigenvectors.

ENGM 3032.03: Applied Statistics.
This course deals with some statistical techniques and their application to engineering problems. Topics covered include probability laws and the interpretation of numerical data, probability distributions and probability densities, functions of random variables, joint distributions, inference concerning mean and variance, tests of hypotheses, and introduction to linear regression. The course emphasizes engineering applications and makes extensive use of statistical computer packages.

ENGM 3052.03: Applied Probability and Statistics.
The topics covered include probability laws and the interpretation of numerical data, probability distributions and probability densities, functions of random variables, joint distributions, inference concerning mean and variance, tests of hypotheses, and introduction to linear regression. The course emphasizes engineering applications and makes extensive use of statistical computer packages.

ENGM 4101.03: Engineering Mathematics and Internetworking.
This course covers fundamental programming principles including flow control, modularity, and structured programming. The student will implement significant packages.

ENGM 4102.03: Computer Programming.
This course covers fundamental programming principles including flow control, modularity, and structured programming. The student will implement significant packages.

ENGM 4103.03: Applied Vector Calculus.
This course covers vector calculus, arc length, curvature, functions of several variables, partial derivatives, implicit functions, constrained and unconstrained extrema, multiple integrals, line, surface, and volume integrals, change of variables in multiple integrals, scalar and vector fields, gradient, divergence and curl, Stokes Theorem, the Divergence Theorem, and applications to heat flow, electrostatics and fluid flow. Programming skills are developed using software tools to solve practical problems.

ENGM 4104.03: Applied Probability and Statistics.
This course covers fundamental programming principles including flow control, modularity, and structured programming. The student will implement significant packages.

ENGM 4105.03: Applied Statistics.
This course deals with some statistical techniques and their application to engineering problems. Topics included are: review of statistical inference, linear regression and correlation, analysis of variance, the design of experiments and nonparametric statistical methods.

ENGM 4106.03: Engineering Mathematics and Internetworking.
This course covers fundamental programming principles including flow control, modularity, and structured programming. The student will implement significant packages.
ENGM 3202.03: Data Structures and Numerical Methods.
This course introduces the student to system analysis, and software techniques. Topics covered include objects, stacks, queues, multiple linked lists, searching and sorting algorithms, and their implementations in the C++ programming language. The students use linear algebra and numerical methods in engineering examples while learning to implement properly structured solutions.

FORMA T: Lecture 3 hours, lab 2 hours
PREREQUISITE: ENGM 1081.03, ENGM 2101.03, ENGM 2022.03
ENGM 3271.03: Engineering Mathematics V.
This course has three parts. The first is complex analysis, including the residue theorem and its applications. The second part concerns transform theory including Fourier Series, Fourier Transform, the frequency domain representation of signals, impulse response, and transfer function. The third part concerns partial differential equations including the classification of equations and boundary conditions, separation of variables, the wave equation, Laplace’s equation, and applications to electrical engineering problems.

FORMA T: Lecture 3 hours, lab 2 hours
PREREQUISITE: ENGM 1081.03, ENGM 2022.03, ENGM 2101.03
CROSS-LISTING: ECED 3390.03
ENGM 3282.03: Data Structures and Numerical Methods.
This course introduces the student to system analysis, and software techniques. Topics covered include objects, stacks, queues, multiple linked lists, searching and sorting algorithms, and their implementations in the C++ programming language. The students use linear algebra and numerical methods in engineering examples while learning to implement properly structured solutions.

FORMA T: Lecture 3 hours, lab 2 hours
PREREQUISITE: ENGM 1081.03, ENGM 1081.03
ENGM 3356.03: Numerical Methods and Partial Differential Equations.
This course provides an introduction to Numerical Analysis and Partial Differential Equations with emphasis on solution of problems related to Mechanical Engineering. The following topics are covered: approximations and errors; roots of non-linear equations; systems of equations; curve fitting; numerical integration and differentiation; numerical solution of ordinary differential equations; partial differential equations; separation of variables, solution of the equation, wave equation, Laplace’s equation with various boundary conditions; numerical solutions of partial differential equations.

FORMA T: Lecture 3 hours, lab 2 hours
PREREQUISITE: ENGM 1081.03, ENGM 1081.03
ENGM 4657.03: Risk Assessment and Management.
This course introduces the student to system analysis, and software techniques. Topics covered include objects, stacks, queues, multiple linked lists, searching and sorting algorithms, and their implementations in the C++ programming language. The students use linear algebra and numerical methods in engineering examples while learning to implement properly structured solutions.

FORMA T: Lecture 3 hours, lab 2 hours
PREREQUISITE: ENGM 2022.03
ENGM 4680.03: Ecosystem Modelling of Marine and Freshwater Environments.
Students develop and apply mathematical models of marine and freshwater ecosystems to study biological production, biogeochemical cycling etc. Lectures provide theoretical background for coupling nutrient and plankton dynamics, including parameterizing biological processes and physical effects. Computer sessions provide hands-on modelling experience. Students also learn to critique modelling literature in a journal-club setting.

FORMA T: Lecture 3 hours, lab 2 hours
CROSS-LISTING: ENGM 6680.03, OCEA 6680.03
I. Introduction

Food Science is a discipline that combines a basic knowledge of science and engineering principles in the study of food products and preservation technologies. Food scientists have training in and employ the principles of the basic sciences such as physics, mathematics, chemistry, biology, biochemistry, and microbiology. Food Science is the application of the basic sciences and engineering to food processing, preservation and safety.

A Minor in Food Science is available to students registered in the BSc 20 credit major and honours programs. See page 373.

II. Curriculum and course descriptions

Refer to sections IID and IIID, Food Science Program, in the Process Engineering and Applied Science section of this calendar, page 369.

III. Admissions

Students from Canadian High schools are recommended to take the following subjects in high school: Pre-calculus Math and English and two or more of Physics, Chemistry, Food Science or Biology. The admission requirements are the same as for admission to the Bachelor of Science program. Many of our students have traditionally been transfer students. Please contact the program chair for advice on this matter.

---

I. Introduction

Industrial Engineers design systems to enable people and society to improve productivity, efficiency, effectiveness and quality. All engineers work at planning, designing, implementing and controlling the systems that enable people to use technology. The systems that industrial engineers design are broad and are characterized by a need to integrate both the physical and decision making capabilities of humans with all other aspects of the system design. Problems range from the design of a work method and work station, to the design of a factory floor, to the design of an overall corporate plan involving materials procurement, production, inventory and distribution. The idea of a factory is also extended to include communications, systems, energy systems, health care systems, municipal systems, transportation systems; in fact all the systems that are essential to the functioning of modern society. To facilitate effective decision making and achieve high performance in areas such as scheduling, inventory and quality control, industrial engineers are often required to design and implement computer based information systems.
Human behaviour and capabilities are key elements in the systems industrial engineers work with. In designing the layout of a production line for an automobile manufacturer, the checkout counter for a supermarket, the organization of work for a bank or the materials handling system for a steel plant, the engineer must consider both physical requirements and cost parameters, and the physiological and behavioural performance of the human operators. The industrial engineer has a dual role, both to extend human capability to operate, manage and control the overall production system, and to ensure the safety and well-being of those working in the system.

Design and development of these systems requires the unique background of the industrial engineer. The process of engineering always starts with measurement. Where other engineers might measure temperatures, pressures, or loads, the industrial engineer measures the time of a work cycle, dollar value of expenditures, rate of machine failures, and demand for finished goods. Usually the mathematical analysis must take into account risk and uncertainty to a larger extent than in other engineering fields. Computer simulation and optimization are often required. The concepts and techniques found in the Industrial Engineering curriculum have been selected to assist the student to develop the skills that meet the specific challenges of systems which involve managerial activities.

Students begin the Industrial Engineering program with a background in engineering fundamentals studied during their initial two years. In the latter portion of the IE program, they are introduced to the fundamental approaches of work place design and operations research, while at the same time enhancing their mathematical and computer background. Later, more advanced modelling approaches are examined together with courses more directly related to the management process. Production scheduling, inventory control, quality management and plant layout are studied, as are the factors which influence human performance. Students are provided with the opportunity to study such areas as manufacturing, service systems, or maintenance through the Department's elective course offerings.

In their final year, all students undertake a major design project. Projects are drawn from companies or institutions outside the University and are treated as a consulting assignment. Students are evaluated on their ability to achieve an innovative solution by drawing upon the analytical skills developed throughout their program of studies. They must also, of course, satisfy the practical requirements of the client.

Job opportunities for industrial engineers are both plentiful and widely based. Former graduates are currently practicing industrial engineering in areas ranging from semiconductor manufacturing and airlines, to utilities and hospitals. Invariably, the work assigned is original in its nature, demanding that the industrial engineer be creative in applying his or her many abilities to achieve the best solution. Managers require such results if they are to keep their costs under control and manage and control the overall production system, and to ensure the safety and well being of those working in the system.

II. Program Guide

Years 1 and 2 follow the core program outlined in the Engineering section of this calendar.

Co-op Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Study Term 1</td>
<td>Study Term 2</td>
<td>FREE</td>
</tr>
<tr>
<td>2</td>
<td>Study Term 3</td>
<td>Study Term 4</td>
<td>FREE</td>
</tr>
<tr>
<td>3</td>
<td>Study Term 5</td>
<td>Work Term 1</td>
<td>Study Term 6</td>
</tr>
<tr>
<td>4</td>
<td>Work Term 2</td>
<td>Study Term 7</td>
<td>Work Term 3</td>
</tr>
<tr>
<td>5</td>
<td>Study Term 8</td>
<td>Study Term 9</td>
<td></td>
</tr>
</tbody>
</table>

Non Co-op Program (Accelerated Program)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Study Term 1</td>
<td>Study Term 2</td>
<td>FREE</td>
</tr>
<tr>
<td>2</td>
<td>Study Term 3</td>
<td>Study Term 4</td>
<td>Study Term 5</td>
</tr>
<tr>
<td>3</td>
<td>Study Term 6</td>
<td>Study Term 7</td>
<td>FREE</td>
</tr>
<tr>
<td>4</td>
<td>Study Term 8</td>
<td>Study Term 9</td>
<td></td>
</tr>
</tbody>
</table>

Students not wishing to participate in the co-op program are able to structure their academic program over a two-year time period. To do so requires the student to complete the first year in the summer study term, which commences the first week of May (Study Term 1). The student then completes Study Term 5 in the fall, and then Study Term 7 in the winter. After a summer "off", the student completes the final two study terms in the same order as students in the co-op program—thus completing the five study or academic terms within two calendar years.

Year 3, Term 5 (Fall)
- IENG 3161.03 Design of Information Management Systems
- IENG 3200.03 Analysis of Design of Production Systems
- IENG 3521.03 Manufacturing Processes and Materials
- IENG 3334.03 Industrial Statistics
- IENG 3343.03 Operations Research: Stochastic and Non-Linear Models

Year 3, Term 6 (Summer)
- IENG 3164.03 Design of Information Management Systems
- IENG 3320.03 Analysis of Design of Production Systems
- IENG 3521.03 Manufacturing Processes and Materials
- IENG 3343.03 Operations Research: Stochastic and Non-Linear Models

Year 4, Work Term 2 (Fall)
- IENG 4432.03 Simulation of Industrial Systems
- IENG 4443.03 Quality Control and Reliability
- IENG 4444.03 Facilities Design
- IENG 4445.03 Design of Inventory Systems
- IENG 4446.03 Project Management and Control

Year 4, Work Term 3 (Summer)
- IENG 4548.03 Systems Engineering
- IENG 4549.03 Special Topics in Industrial Engineering

Year 4, Term 7 (Winter)
- IENG 4447.03 Operations and Management
- IENG 4500.06 Industrial Engineering Design Project
- IIE Elective
- IIE Elective

Year 5, Term 8 (Fall)
- IENG 4547.03 Operations and Management
- IENG 4500.06 Industrial Engineering Design Project
- IIE Elective
- IIE Elective

Year 5, Term 9 (Winter)
- IENG 4528.03 Industrial and Organizational Psychology
- IENG 4500.06 Industrial Engineering Design Project
- IIE Elective
- IIE Elective

Industrial Engineering Electives
- IENG 4544.03 Routing and Scheduling
- IENG 4562.03 Maintenance Engineering and Management
- IENG 4564.03 Design and Optimization of Service Systems
- IENG 4571.03 Computer Integrated Manufacturing Systems
- IENG 4572.03 Industrial Biomechanics
- IENG 4573.03 Decision and Risk Analysis
- IENG 4579.03 Computer Networks
- IENG 4599.03 Special Topics in Industrial Engineering
III. Course Descriptions

IENG 2005.03: Engineering Economics.
This course is designed to provide students with the fundamentals of engineering economics. Engineers must function as managers in the real world of decision making where the criteria include not only technological excellence, but cost. Time value of money, project screening, and a variety of discounting analysis techniques are presented. Make versus buy decisions and review versus replace decisions are discussed. The tax effects on project cash flow and viability are also presented. This course is designed to introduce students to these fundamentals, and apply them through the use of software and projects.

FORMATTED: Lecture 3 hours, lab 2 hours

IENG 3301.03: Fundamentals of Industrial Engineering.
This course introduces students to the fundamentals of industrial engineering. The history, development and theoretical basis of industrial engineering will be discussed, as well as the social and environmental impact of engineering decisions. Students will be introduced to the concept of systems and systems thinking. Fundamental industrial engineering techniques will be covered, including motion study, work measurement of standards, and operations evaluation and analysis.

FORMATTED: Lecture 3 hours, lab 2 hours

PREREQUISITE: IENG 2005.03
EXCLUSION: IENG 3311.03

IENG 3303.03: Ergonomics and Work Design.
Ergonomics is the science of applying knowledge of the capabilities and limitations of humans into the design of products, work spaces and systems we use every day. Topics in this course include the musculoskeletal system, anthropometry, manual material handling, work physiology, the effect of work environment on performance, human/machine interaction, cognition and information processing. Design principles based on this knowledge will be presented. This course will include labs and final design project.

FORMATTED: Lecture 3 hours, lab 3 hours

CROSS-LISTING: KINE 3407.03

EXCLUSION: IENG 3313.03, IENG 3347.03

IENG 3305.03: Computational Methods and Algorithms for IE.
An overview of advanced programming methods is presented with an introduction to algorithms used in industrial engineering applications. Topics covered include sorting, searching, data structures, shortest path, random number generation, simulated annealing, matrix operations, curve fitting and geometric algorithms. Algorithms for solving several classes of equations are considered. Techniques for writing and debugging large programs, and controlling numerical errors are taught. The C programming language will be used for implementation.

FORMATTED: Lecture 3 hours, lab 2 hours

PREREQUISITE: IENG 1001.03

IENG 3316.03: Design of Information Management Systems.
Techniques used in the design of information management systems to support decision making are taught. This includes the principles of systems analysis, software engineering and requirements analysis. The design of relational database systems, user interfaces and documentation are covered. Current technologies for computer hardware, software, networking and communications are reviewed. Students are taught how to program database applications in a fourth generation environment. Software development projects will be assigned.

FORMATTED: Lecture 3 hours, lab 2 hours

PREREQUISITE: IENG 1001.03

IENG 3320.03: Analysis and Design of Production Systems.
This course teaches the student with an introduction to issues in planning and control of production systems and scheduling techniques used in production environments. Topics include aggregate planning models, performance measurement, materials requirements planning, production lot-sizing, just-in-time (JIT) models and other pull control systems. Job scheduling and sequencing. Models currently practiced in industry, such as Lean Manufacturing and Six-Sigma, will also be introduced.

FORMATTED: Lecture 3 hours, lab 3 hours

PREREQUISITE: IENG 1001.03, IENG 2202.03, IENG 3345.03, IENG 2203.03 (may be taken concurrently)

IENG 3321.03: Manufacturing Processes and Materials.
The course deals with properties of manufacturing materials, casting and forming, traditional and non-traditional machining processes, welding and computer-integrated manufacturing (CIM). Theoretical background is provided that includes equilibrium diagrams, heat treatment, tool life and wear, and manufacturing and quality control.

FORMATTED: Lecture 3 hours, lab 2 hours

PREREQUISITE: ENGI 1101.045, ENGI 2203.03

IENG 3334.03: Industrial Statistics.
This course covers hypothesis testing, chi square tests and nonparametric techniques, analysis of variance and experimental design, as well as simple and multiple linear regression. Numerical examples are solved by straightforward calculation as well as by computer software, and various applications are presented. A project concerns the building and testing of a multiple linear regression model.

FORMATTED: Lecture 3 hours, lab 2 hours

PREREQUISITE: ENGM 2010.03, IENG 1004.03, IENG 1081.03

IENG 3345.03: Operations Research: Linear Models.
The course is an introduction to linear programming and its applications to industrial engineering design. The simplex method and duality theory are covered in detail. Formulation, solution algorithms, and applications of several problem classes are presented including network models and integer programs. Through a class project, students are introduced to the process of developing an optimization model, including the ideas of database, matrix generators, and report writers.

FORMATTED: Lecture 3 hours, lab 3 hours

PREREQUISITE: ENGM 2010.03, IENG 1004.03, IENG 1081.03

IENG 3348.03: Systems Engineering.
The course places the industrial engineering viewpoint in the context of systems theory. The course begins with an introduction to the general concepts of systems, and then examines classical linear systems theory as applied traditionally in engineering. It is shown how industrial engineering design can be viewed as a control system problem. The concepts of systems engineering are in turn applied to industrial engineering design. Systems dynamics simulation is used to explore these ideas. Issues of capacity planning, hierarchical production planning and control, short term scheduling and data envelopment analysis are presented.

FORMATTED: Lecture 3 hours, lab 2 hours

PREREQUISITE: IENG 2023.03, IENG 2025.03, IENG 3354.03

EXCLUSION: IENG 4404.03

IENG 4432.03: Simulation of Industrial Systems.
The course stresses discrete event systems simulation. Model development includes validation and verification methods, the generation of pseudo-random numbers from continuous and discrete distributions, selection of probability distributions and variance reduction techniques. Statistical output analysis and inference are studied for effective interpretation of results. Applications in areas such as manufacturing, service operations, project management and system design are reviewed. Simulation software is used throughout the course.

FORMATTED: Lecture 3 hours, lab 2 hours

PREREQUISITE: IENG 3300.03, IENG 3301.03, IENG 3334.03, IENG 3345.03

EXCLUSION: IENG 4404.03

IENG 4443.03: Quality Control and Reliability.
The course evaluates aspects of production to ensure that products meet specifications. Statistical quality control, which is used to determine process capability and to detect process changes, involves the design and use of different types of control charts. Sampling inspection, which is used to separate good lot
from poor lots, covers the design of sampling plans. Reliability is concerned with the design of products and reliability testing.

**IENG 4443.03: Quality Control and Reliability.**

This course evaluates aspects of production to ensure that products meet specifications. Statistical quality control, which is used to determine process capability and to detect process changes, involves the design and use of different sampling plans. Sampling inspection, which is used to separate good and poor lots, covers the design of sampling plans. Reliability is concerned with the design of products and reliability testing.

**FORMAT:** Lecture 3 hours, lab 2 hours
**PREREQUISITE:** IENG 3301.03, IENG 3311.03, IENG 3334.03
**EXCLUSION:** IENG 3443.03

**IENG 4445.03: Facilities Design.**

This course deals with the principles, concepts and methods of plant layout and materials handling for the optimum design of a facility. The topics include information requirements for facility design, conventional and newer quantitative techniques for analyzing material flow, facilities location, space determination, computerized plant layout techniques, the unit load concept, materials handling equipment selection and automatic storage and retrieval systems. A project involves facilities design for the manufacture and assembly of a mechanical device.

**FORMAT:** Lecture 3 hours, lab 2 hours
**PREREQUISITE:** IENG 3301.03
**EXCLUSION:** IENG 3445.03

**IENG 4454.03: Design of Inventory Systems.**

This course introduces a number of quantitative methods for the analysis and design of inventory systems. These include deterministic and probabilistic economic order quantity (EOQ) models and variants, single and multiple-period inventory models, exchange curves, and other advanced inventory models. Forecasting algorithms applicable to inventory systems are also covered.

**FORMAT:** Lecture 3 hours, lab 3 hours
**PREREQUISITE:** IENG 3013.01, IENG 3311.03, IENG 3320.03, IENG 3334.03, IENG 3343.03

**IENG 4500.03: Operations Research Methods for Systems Engineering.**

This course will introduce non-industrial engineering students to operations research models and methodologies to optimize the design, development and operation of engineered systems. The objectives of this course will be to provide students with the skills to solve a variety of linear and nonlinear models and the ability to recognize how such models can be applied in a wide variety of engineering disciplines. Topics to be covered include linear programming, integer programming, network models, decision analysis, dynamic programming, queuing models, and non-linear optimization. Applications will focus on diverse areas of engineering such as manufacturing, transportation, and environmental management.

**PREREQUISITE:** IENG 3301.03

**IENG 4529.03: Industrial and Organizational Psychology.**

Industrial behavior and group processes are reviewed, particularly as they relate to activities in organizations. Perception, learning, motivation and attitudes are covered. The implications of different personality types at work are taught. Organizational issues such as group dynamics, communication, power and conflict are studied. Applications include job analysis, team effectiveness, personnel selection and training, job enrichment, leadership and career management.

**FORMAT:** Lecture 3 hours, lab 2 hours

**IENG 4544.03: Routing and Scheduling.**

Optimization techniques for solving vehicle routing and scheduling problems are covered. Elementary concepts and systems for graphs, networks, maps and geographic information systems (GIS) are presented. Specific issues include NP-complete problems, shortest paths and traveling salesman problems. Vehicle routing and scheduling with capacity constraints, time windows, pick-up and delivery constraints are also discussed. Applications in manufacturing and transportation are reviewed.

**FORMAT:** Lecture 3 hours, lab 2 hours
**PREREQUISITE:** IENG 3305.03, IENG 3344.03

**IENG 4547.03: Computer Integrated Manufacturing Systems.**

Techniques are introduced for the analysis and design of computer integrated manufacturing systems. The architecture of CIM is discussed, including machining stations, material handling, robots, computer control and information systems. Specific topics include manufacturing simulation, automated material handling, warehouse management, robotics, manufacturing planning and control, just-in-time systems, group technology, cellular manufacturing, flexible manufacturing systems, concurrent engineering, computer aided process planning and information systems design.

**FORMAT:** Lecture 3 hours, lab 2 hours
**PREREQUISITE:** IENG 3301.03, IENG 3345.03

**IENG 4571.03: Computer Integrated Manufacturing Systems.**

The course primarily deals with the functioning of the structural elements of the human body and the effects of external and internal forces on the body. Due emphasis is given to the biomechanical approach to job analysis. This takes into account human motor capabilities and limitations, work physiology, task demands, equipment and workplace characteristics in an integrated manner. Use of instruction and applications of biomechanics in work, industry and rehabilitation are discussed.

**FORMAT:** Lecture 3 hours, lab 2 hours
**PREREQUISITE:** IENG 3320.03, IENG 3321.03, IENG 4452.03

**IENG 4573.03: Industrial Biomechanics.**

This course develops BQ-34 assessment, and decision-making are presented. Methods for scoping a decision-making problem, environmental, social, economic and public approval of society are discussed.

**FORMAT:** Lecture 3 hours, lab 2 hours
**PREREQUISITE:** IENG 2005.03

**IENG 4558.03: Project Management and Control.**

This course identifies the common aspects and peculiarities of projects and their phases to illustrate the application of analytical approaches to meet the challenges of achieving effective project management. The following topics are covered: feasibility studies, project planning, cost estimation, building, use of professional tools and other types of computerized project scheduling and resource allocation and project life cycle concepts. The role of the professional engineer in society and the impact that engineering in all its forms makes on the environment, social, economic and cultural aspirations of society are discussed.

**FORMAT:** Lecture 3 hours, lab 2 hours

**IENG 4562.03: Maintenance Engineering and Management.**

This course deals with basic maintenance systems of equipment and buildings, maintenance job planning and scheduling, maintenance work measurement/standard maintenance (SMS), breakdown versus preventive maintenance, total productive maintenance (TPM), budgets and cost control, computerized maintenance management information system, reliability measurement based on the Weibull distribution, maintainability measures and managing maintenance.

**FORMAT:** Lecture 3 hours, lab 2 hours
**PREREQUISITE:** IENG 3205.03

**IENG 4564.03: Design and Optimization of Service Systems.**

This course will focus on the design of systems in Canada’s largest industry: healthcare. Throughout the course, examples drawn from healthcare will be used to illustrate how industrial engineering techniques can be applied in a wide variety of settings. Topics to be discussed include: capacity planning, service distribution, quality, decision, analysis, scheduling, and waiting line models.

**FORMAT:** Lecture 3 hours, lab 2 hours
**PREREQUISITE:** IENG 3301.03, IENG 3345.03

**IENG 4571.03: Computer Integrated Manufacturing Systems.**

The purpose of this course is to introduce the student to the management and operation of large and small businesses. Topics include the business environment in Canada, entrepreneurship, small business start-up and financing, organizational theory, management cycles, managing projects, human resources, industrial relations, management functions, marketing and sales. A term project is an integral part of this course.

**FORMAT:** Lecture 3 hours, lab 2 hours
**PREREQUISITE:** IENG 2005.03

**IENG 4547.03: Company Operations and Management.**

This course covers the design of products and reliability testing. The purpose of this course is to introduce the student to the management and operation of large and small businesses. Topics include the business environment in Canada, entrepreneurship, small business start-up and financing, organizational theory, management cycles, managing projects, human resources, industrial relations, management functions, marketing and sales. A term project is an integral part of this course.

**FORMAT:** Lecture 3 hours, lab 2 hours
**PREREQUISITE:** IENG 2005.03
Materials Engineering

I. Introduction

Metals and materials are found in every aspect of society today. Materials have always been central to the advancement of civilization so it is not surprising that entire eras are named after them (bronze age, iron age). The importance of developing new, advanced materials is truly a global issue with societal demands for things such as more fuel efficient vehicles and faster computer processors reaching all time highs. Materials Engineers are the driving force behind such developments, having an unsurpassed understanding of the respective structure, properties and processing of materials. Consequently, graduates are employed in practically all industries. Principals amongst these are primary metal production, automotive, aerospace, government research establishments and consulting firms. Literally all graduates find immediate employment - historically, over 70% have secured full time positions before the start of their final academic term. These niche individuals are highly respected within the companies that they work for and many advance into upper managerial and executive positions.

The program has been designed to give students extensive coverage of this highly unique field which in itself is very broad. The principal branches of Materials Engineering in which students receive instruction include (i) Extractive Processing of Materials, (ii) Structure of Materials, and (iii) Mechanical Properties and Testing of Materials; usually the graduating engineer chooses to specialize in one of these three. Students learn about all of the major courses of materials including metals, ceramics, polymers, and composites -graduates are true “Materials Experts.” In doing so, the respective curricula are designed to provide in-depth knowledge of engineering and more importantly, extensive coverage of discipline-specific areas. Students’ understanding of the field is further accentuated by the fact that average class sizes are on the order of 20 to 25 students ensuring each an exceptional level of attention from faculty members and one-on-one interaction.

In 1979, Materials Engineering was the first discipline in the faculty to offer the now highly popular Co-op Program. Students are able to obtain a Bachelor of Engineering, the other a combined BEng/MAE Degree. The undergraduate curriculum is the same for both programs.

The BEng/MAE was developed in light of the program’s strong commitment to research and to permit the identification of students interested in graduate studies before they complete their undergraduate courses. In this regard, all faculty members are actively involved in international research and development initiatives. Consequently, students may also choose to pursue Master’s and Doctoral programs.
II. Curriculum and course descriptions
Refer to sections III and IIIE, Materials Engineering Program, in the Process Engineering and Applied Science section of this calendar, page 369.

III. Co-operative program and schedule
Refer to section E. Technical Co-op Program, in the Engineering section of this calendar, page 341.

Mechanical Engineering

Location: Sexton Campus
5209 Mount Stewart
PO Box 15000
Halifax, NS B3H 4R2

Telephone: (902) 494-3917
Fax: (902) 423-6711

Dean
Leo, L. J., BSc, MSc, PhD (Dalhousie), PEng

Department Head
Doman, D. A., BSc, PhD (Dalhousie)

Professors Emeriti
Cockburn, R. O., BSc(Eng) (UBC), MASc (Toronto), PhD (Iowa State), PEng, CD
Russell, L. T., BEng (TUNS), MSc (Queen’s), PhD (Calgary), PEng

Professors
Allen, P. L., BSc (McM), BEng (TUNS), MEng (Memorial), PhD (TUNS), PEng
Bann, P., BEng (Bath), PhD (Bristol), PhD (Aston), PEng
Bauer, R. J., BEng (Waterloo), PhD (Toronto), PEng
Chuang, J. M., BSc (National Taiwan Ocean), MEng (Memorial), PhD (TUNS), PEng
Hubbard, T., BSc (Dalhousie), BEng (TUNS), PhD (Calgary), PEng
(Undergraduate Program Coordinator)
Kalnikovskii, A. L., BSc, MSc, PhD (Moscow State), BEng (Acad Sci, USSR), PEng, FASME, FCSME
Kujath, M. R., MSc (Warsaw Tech Univ), PhD (Polish Academy of Science), PEng
Militzer, J., BSc (IEM Brazil), MSc (USP Brazil), PhD (Tokyo), PEng
Ugursal, V. I., BSc (Bogazici), MEng, PhD (TUNS), PEng, FASME, FCSME
(Warren, A., BEng, MSc (McMaster), PhD (Waterloo), PEng

Associate Professors
Guo, D., BEng, PhD (Sharpe), Ing, PEng
Johnston, C. R., BSc, MSc (Alberta), PhD (Calgary), PEng
Irani, R., BASc (Windsor), MSc, PhD (Dalhousie)
Pun, Y., BEng (Yansun, China), MEng (Zhejiang, China), PhD (NUS, Singapore), PEng (Graduate Coordinator)

Assistant Professors
Doman, D. A., BASc, MSc (Waterloo), BEng (Dalhousie), PEng (Co-op Coordinator)

Adjunct Professors
Branum-Mortensen, L., BASc, MEng (Waterloo), PhD (E of Strategy John)
Fang, G., BSc (McMaster), BEng, MSc, PhD (Dalhousie), PEng
Ismail, R., BS Ce (Windsor), MSc, PhD (Dalhousie)
Molloy, N., BEng (Concordia), MSc, PhD (McGill)
Quinn, W., BSc, U. of Strathclyde, MSc, PhD (Queen’s)
Sato, M., BSc, MSc, PhD (UK), PEng

Senior Instructor
Warner, R. A., BEng (TUNS), PEng

I. Introduction
Mechanical Engineering covers a very broad field of professional activity in such areas as land, sea, air, and space transportation; primary and secondary manufacturing industries; energy supply, conversion and utilization; environmental control; and industrial management. In these areas, the Mechanical Engineer may become involved with design, construction, operation, development, research, planning, sales and management.
Mechanical Engineering offers two versions of the BEng Program:

1. Co-op Program
2. Non-Co-op Program

### A. Co-op Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Term 1</td>
<td>Study Term 1</td>
<td>Study Term 1</td>
<td>Study Term 1</td>
</tr>
<tr>
<td>Study Term 2</td>
<td>Study Term 2</td>
<td>Study Term 2</td>
<td>Study Term 2</td>
</tr>
<tr>
<td>Work Term 1</td>
<td>Work Term 1</td>
<td>Work Term 1</td>
<td>Work Term 1</td>
</tr>
<tr>
<td>Study Term 3</td>
<td>Study Term 3</td>
<td>Study Term 3</td>
<td>Study Term 3</td>
</tr>
</tbody>
</table>

Years 1 and 2 follow the core program outlined in the Engineering section of this calendar.

#### Year 3, Work Term 1 (Fall)
- MECH 3100.03 Machine Design: Loading of Components
- MECH 3300.03 Dynamics of Machines
- MECH 3800.03 Mechanical Engineering Thermodynamics
- CMPT 3000.03 Engineering in Society II
- ENGM 3335.03 Numerical Methods and Partial Differential Equations
- MATH 3000.03 Materials Engineering

#### Year 3, Work Term 2 (Summer)
- MECH 4900.03 Thermo-Fluid Engineering III
- MECH 4910.03 Fluid Power
- MECH 4920.03 Advanced Control Engineering
- MECH 4930.03 Computer Aided Toler. & Dimensioning
- MECH 4940.03 Robotics
- MECH 4950.03 Marine Craft Design
- MECH 4960.03 Biomechanical Engineering
- MECH 4970.03 Kinematics of Human Motion
- MECH 4980.03 Mechanical Engineering Thermodynamics
- MECH 4990.03 Energy from Renewable Resources
- MECH 4021.03 Thermodynamics of Heat Engines
- MECH 4031.03 Heat Transfer
- MECH 3900.03 System I
- Humanities Course*

### Year 4, Work Term 3 (Winter)

#### Year 4, Work Term 4 (Summer)

#### Year 5, Study Term 7 (Fall)
- MECH 4025.03 Design Project II
- MECH 4950.03 Vibration
- MECH 4990.03 System II
- Technical Elective I
- Technical Elective III

#### Year 5, Study Term 8 (Winter)
- MECH 4805.03 Thermo-Fluid Engineering III
- MECH 4810.03 Energy Conversion Systems
- MECH 4820.03 Energy from Renewable Resources
- MECH 4830.03 Reciprocating Internal-Combustion Engines
- MECH 4840.03 Steam Plant Engineering
- MECH 4850.03 Heat Exchangers & Air Conditioning
- MECH 4860.03 Heat Transfer
- MECH 4870.03 Fluid Power
- MECH 4880.03 Advanced Control Engineering
- MECH 4890.03 Computer Aided Toler. & Dimensioning

### B. Non-Co-op Program

#### Technical Elective Choices
- MECH 4000.03 Manufacturing
- MECH 4010.03 Energy Management I
- MECH 4020.03 Thermodynamics
- MECH 4030.03 Principles of Marine Craft Design
- MECH 4040.03 Biomechanical Engineering
- MECH 4050.03 Marine Craft Design and Construction
- MECH 4060.03 Applied Dynamics
- MECH 4070.03 Mechanics of Composite Materials
- MECH 4080.03 Aerodynamics
- MECH 4090.03 Space Systems
- MECH 4100.03 CAD/CAM
- MECH 4110.03 Computer Aided Toler. & Dimensioning
- MECH 4120.03 Robotics
- MECH 4130.03 Biomechanical Engineering
- MECH 4140.03 Kinematics of Human Motion
- MECH 4150.03 Finite Element Method in Mechanical Design
- MECH 4160.03 Energy from Renewable Resources
- MECH 4170.03 Thermodynamics of Heat Engines
- MECH 4180.03 Heat Transfer
- MECH 3900.03 System I
- Humanities Course*
Faculty of Engineering

Undergraduate book  Page 366  Wednesday, March 12, 2014  12:03 PM

3. Seniors may take one technical elective from another engineering department at Dalhousie with the permission of the undergraduate advisor of the Mechanical Engineering department and the professor offering the course.

III. Course Descriptions

MECH 3010.03: Machine Design: Loading of Components.

This course builds on the thermodynamics concepts presented in Thermo-Fluid MECH 3805.03: Mechanical Engineering

PREREQUISITE: ENGI 2102.03, ENGI 2103.03

FORMAT: Lecture 3 hours, lab/tutorial 2 hours

MECH 3200.03: Machine Design: Power Components.

The use of engineering principles in the design of machine power components is developed. Topics include: lubrication and sliding bearings, solid bearings, spur gears, bevel, helical and worm gears, shafts, clutches and brakes, power transmitters such as belts and chains.

FORMAT: Lecture 3 hours, lab/tutorial 2 hours

PREREQUISITE: MECH 2100.03 or ENGI 2203.03, ENGI 2400.03

MECH 3305.03: Fluid Mechanics.

This course presents the dynamic governing equations of fluid flow in differential forms: continuity, Navier-Stokes and energy. Concepts of stream function, vorticity and velocity potential are also introduced. The physics and modeling of Turbulence in fluid systems is shown. The boundary layer theory is shown and flow past immersed bodies is studied. Concepts of drag and lift forces are presented. Compressible flow is introduced: speed of sound, nozzle and diffuser, shock waves, Rayleigh and Fanno flows are all studied.

FORMAT: Lecture 3 hours, lab/tutorial 2 hours

PREREQUISITE: MECH 2100.03 or ENGI 2203.03, ENGI 2400.03

MECH 3500.03: Dynamics of Machines.

The course focuses on design of mechanism, their motion, static and dynamic loads, and power transmission. It includes planar and spatial 4-bar and 5-bar linkages, cam mechanisms, gear trains, or other systems, and manipulators. Linkage inversion, transformation, and synthesis are used for design of new mechanisms. Graphical, analytical, computer, and physical modeling techniques are used. Many real-life mechanisms are analyzed.

FORMAT: Lecture 3 hours, lab/tutorial 3 hours

PREREQUISITE: ENGI 2102.03, ENGI 2103.03

MECH 3600.03: Finite Element Method in Mechanical Design.

This course deals with the application of the finite element method to stress analysis problems encountered in mechanical design. Introduction to the finite element method is followed by extensive applications to the design of machines and structural components. Mechanical and thermal stress in beams, beams, asymmetrical, shell, and 3D solid elements are considered. Professional finite element modeling best practices are discussed. A finite element pre-processor, code, post-processor are introduced and used in the course assignments.

FORMAT: Lecture 3 hours/week, tutorial 2 hours

PREREQUISITE: ENGI 2400.03

MECH 3705.03: Heat Transfer.

This course is an introduction to the three modes of heat transfer: conduction, convection and radiation. Topics covered in conduction include steady-state and transient conduction, in one and two-dimensional systems, and the study of extended surfaces. Force and free convection for internal and external flows are examined. The fundamentals of radiation heat transfer are covered, including blackbody radiation, grey surfaces, Kirchhoff's law and radiation exchange between surfaces.

FORMAT: Lecture 3 hours/lab/tutorial

PREREQUISITE: ENGI 2102.03, ENGI 2103.03

MECH 3805.03: Mechanical Engineering Thermodynamics.

This course builds on the thermodynamics concepts presented in Thermo-Fluid Engineering I. Introductory concepts of cycles, processes, heat and work are reviewed. The first and second law of thermodynamics are applied to open and closed systems, both steady-state and transient processes. Availability and energy analysis are presented. Vapour and gas power and refrigeration cycles are studied; absorption refrigeration cycles and refrigerants are also discussed.

FORMAT: Lecture 3 hours, lab/tutorial 3 hours

PREREQUISITE: ENGI 2102.03, ENGI 2103.03

MECH 3900.03: Systems I.

The course deals with the analysis of dynamic physical systems. Ordinary- and partial-differential equations are developed for mechanical, thermal, fluid and electrical systems. System equations are solved using classical methods and Laplace-transform techniques. System characteristics are introduced, as are block-diagram & state-space representations. Systems are simulated by digital computer in the laboratory portion.

FORMAT: Lecture 3 hours, lab/tutorial 3 hours

PREREQUISITE: ENGI 2300.03 or ENGI 2202.03, ENGI 2101.03 or ENGI 2101.03

MECH 4000.03: Manufacturing.

The course starts with a manufacturing process overview and a final design project study in the following areas: manual assembly, machining, injection molding, thermofoming and cutting. A relationship between process and design is examined and design for manufacturing methodologies is introduced. Quality control and quality assurance issues are overviewed. The principles of cell design for assembly and machining are introduced and part technology for process and system is studied.

FORMAT: Lecture 3 hours, lab/tutorial 2 hours

PREREQUISITE: MECH 3020.03

MECH 4015.05: Design Project I.

This course provides a project-based exercise in the engineering design process in a real world engineering context. Students work in teams and are expected to take the project from its preliminary stage through the design stages to the ultimate completion of the design including: technical reports with calculations, engineering drawings, peer evaluation, and presentations and possibly a physical prototype or model.

FORMAT: Lecture 3 hours, lab/tutorial 2 hours

PREREQUISITE: MECH 3010.03 or MECH 3020.03

MECH 4025.05: Design Project II.

This course is a direct continuation of Design Project I leading to the implementation of the student team design. All projects involve a final examination. Testing of student designs, this is usually done via a constructed physical prototype or a model. Students produce a final technical report, conduct peer evaluations and give a final presentation.

FORMAT: Lecture 3 hours, lab/tutorial 2 hours

PREREQUISITE: MECH 4015.05

MECH 4300.03: Stress Analysis.

Topics include: general state of stress, equilibrium equations, stress-strain-temperature relations, plane stress, axi-symmetrical stress problems, thick cylindrical pressure vessel, rotating disks, bending of rectangular and circular plates, tension of non-circular membranes, membrane analogy, thin-walled hollow sections, non-symmetrical bending, properties of cross-sections, stress center, composite beams, plastic hinge, Energy Methods, Castigliano’s and theorems, statically indeterminate problems.

FORMAT: Lecture 3 hours, lab/tutorial 2 hours

PREREQUISITE: MECH 2100.03

MECH 4340.03: Energy Management I.

The purpose of this course is to introduce the concepts and techniques of energy management and conservation. The subjects that will be discussed are energy supply and demand, energy pricing, scope of the energy problem and approaches to provide solutions; energy auditing; improving energy utilization in space conditioning, and steam, hot water and compressed air systems; insulation; and electrical energy conservation. An interdisciplinary approach will be employed in this course to provide a wider understanding of the subject.

FORMAT: Lecture 3 hours, tutorial 2 hours

PREREQUISITE: MECH 3300.03 or MECH 3700.03 or MECH 3700.03 or ENGM 3000.03 or MECH 3805.03

CROSS-LISTING: ENGM 3300.03

MECH 4400.03: Turbomachinery.

Various types of turbomachinery, from wind turbines to high-ratio compressors are studied. Although hydraulic pumps and turbines are treated, the majority of the
MECH 4440.03: Principles of Marine Craft Design. This course covers the fundamentals of hydrodynamics and hydrostatics of marine craft. Topics include: hydrodynamics and stability calculations for marine craft; dimensional analysis and modelling of marine systems; resistance estimation of low-speed and high-speed craft; sail power, marine propellants and jet propulsion; difference equations control theory and motion in waves. FORMAT: Lecture 3 hours, laboratory 3 hours

MECH 4444.03: Mechatronics. This course deals with the integration of mechanical, electrical, computer and control engineering which is increasingly becoming an important part of engineering design. Topics include: Mechanical and Electrical Actuation Systems, Sensors, and Signal Conditioning, Microprocessors and Programming and Control. A major part of the course is project-based enabling students to apply the concepts studied in the course. FORMAT: Lecture 3 hours, laboratory/tutorial 2 hours

MECH 4450.03: Engineering Measurements. The static and dynamic characteristics of force and second-order systems and measurement systems are examined. The experimental versus theoretical approach to engineering problems is studied. Topics include data acquisition, analysis, and presentation, including the probabilistic nature of engineering measurements. The course is designed to ensure measurement systems and data conversion on force, strain, temperature, pressure, velocity, and fluid flow. Computers are used extensively in the laboratory experiments. FORMAT: Lecture 3 hours, laboratory/tutorial 3 hours

MECH 4460.03: Space Systems. This course deals with the design and analysis of space systems and their interrelationships. Topics include orbital mechanics, satellite perturbations, satellite antenna and sensor systems, satellite access and coverage. FORMAT: Lecture 3 hours, tutorial 2 hours

MECH 4490.03: Robotics. The course is designed to provide an introduction to the design and programming of robots. Topics include: robot arm and gripper, drives, robot position measuring systems, external sensors and feeding, storage, changing position and clamping devices, all of which, together with the robot itself, constitute a "robotized" workplace. The main part of the course is focused on the robot hardware. However, robots are an inherently interdisciplinary field and the course will also involve sensor and control systems. Other topics include: robotics in an inherently interdisciplinary field and the course will also involve robotics control and application. Topics covered include: mechanical and dynamics of the robot arm and gripper, drives, robot position measuring systems, external sensors and feeding, storage, changing position and clamping devices, all of which, together with the robot itself, constitute a "robotized" workplace. FORMAT: Lecture 3 hours, laboratory/tutorial 2 hours

MECH 4500.03: Vibrations. Single and multiple degree of freedom lumped parameter systems subjected to harmonic and transient excitation are examined. Analytical as well as numerical solutions are covered. Vibrations of continuous systems such as beams and shafts are introduced. Laboratory experiments deal with vibration of lumped parameter physical systems as well as vibrations of rotating machinery. Vibration control in industrial applications is emphasized and the effects of whole body vibration on humans are studied. FORMAT: Lecture 3 hours, laboratory/tutorial 2 hours

MECH 4510.03: Mechanics of Composite Materials. The course introduces classification of composite materials, fabrication processes and applications of composites; the basic relations of anisotropic materials are studied. The behavior of composites and the significance of composite materials are considered. Smart composite structures and their constituents are introduced. FORMAT: Lecture 3 hours, laboratory/tutorial 2 hours

MECH 4521.03: Applied Dynamics. This course begins with a review of plane kinematics and kinetics of rigid bodies. This course is designed to provide an introduction to the design and programming of robots. Topics include: robot arm and gripper, drives, robot position measuring systems, external sensors and feeding, storage, changing position and clamping devices, all of which, together with the robot itself, constitute a "robotized" workplace. The main part of the course is focused on the robot hardware. However, robots are an inherently interdisciplinary field and the course will also involve sensor and control systems. Other topics include: robotics in an inherently interdisciplinary field and the course will also involve robotics control and application. Topics covered include: mechanical and dynamics of the robot arm and gripper, drives, robot position measuring systems, external sensors and feeding, storage, changing position and clamping devices, all of which, together with the robot itself, constitute a "robotized" workplace. FORMAT: Lecture 3 hours, laboratory/tutorial 2 hours

MECH 4540.03: Aero-dynamics. The course deals with the fundamentals of aerodynamics and the theory of flight. Material covered includes: the standard atmosphere; airfoil coefficients and section properties; finite wings and induced drag; airplane performance - power required, rate of climb, range and endurance; basics of stability and control. FORMT: Lecture 3 hours, laboratory/tutorial 2 hours
**Mechanical Engineering**

Emphasis is also placed on numerous experimental facts collated from the biomedical research literature. Topics include kinematic geometry of a single body, the description of joint configuration, and differential kinematics of biokinematic chains. Three-dimensional kinematics of individual joints (i.e., the knee, hip and elbow) is emphasized from the perspective of total joint replacement design.

**MECH 4600.03: Finite Element Method in Mechanical Engineering**

Class deals with the application of the finite element method to stress analysis problems using the Finite Element Method (FEM). Emphasis is placed on understanding the fundamental principles of the finite element method. The course covers the formulation of the finite element method and its application to a variety of mechanical engineering problems. Students will learn how to model and analyze complex structures using the finite element method.

**MECH 4805.03: Thermo-Fluid Engineering III.**

This course builds on the thermodynamics concepts presented in Thermo-Fluid Engineering I. Introductions to basic concepts of cycles, processes, heat and work are reviewed. The first and second law of thermodynamics are applied to open and closed systems, both steady-state and transient processes. Availability and energy analysis are presented. Vapour and gas power and refrigeration cycles are studied; absorption refrigeration cycles and refrigerants are also discussed.

**MECH 4900.03: Fluid Power Systems**

This course covers the principles of fluid power systems, focusing on the design and operation of hydraulic and pneumatic systems. Topics include fluid power system design, fluid power system control, and fluid power system application. The course is supported by computer-based simulation and design software.

**MECH 4950.03: Advanced Control Engineering.**

The course develops the students' capabilities in system simulation and feedback control system design. Topics include system-parameter identification, control-system hardware, computer-based forward/feedback control-system design and implementation. Topics include: system-parameter identification, control-system hardware, computer-based forward/feedback control-system design and implementation. The course is supported by computer-based simulation and design software.

**MECH 4960.03: Computational Methods in Engineering.**

The course presents basic computer methods of application of mathematical tools to solve engineering problems. Numerical methods such as finite differences, finite elements, and adaptive control. The course is supported by computer-based simulation and design software.

**MECH 4851.03: Heating, Ventilating and Air Conditioning.**

Design basics in the design of thermal systems for indoor climate control. The major topics include: human comfort requirements, outdoor climate variables, heating and air-conditioning loads, cooling and dehumidification loads, ventilation requirements and criteria, system control types and selection, energy sources and costs, piping, pumps, ducts, fans, and control systems. Computer programs will be introduced for design calculations involving heating and cooling load, piping, ducting and energy consumption. The course covers the principles of fluid power systems, focusing on the design and operation of hydraulic and pneumatic systems. Topics include fluid power system design, fluid power system control, and fluid power system application. The course is supported by computer-based simulation and design software.
Mineral Resource Engineering

Location: G Building, Sexton Campus
1360 Barrington Street
PO Box 15000
Halifax, NS B3H 4R2

Dean
Leon, L. J., BSc, MSc, PhD (Dalhousie), PEng

Department Head, Civil and Resource Engineering
Lake, C., BEng (TUNS), PhD (UWO), PEng

Undergraduate Program Co-ordinator
Hill, J. D., BSc (Acadia), PhD (Western)

I. Introduction

The Mineral Resource Engineering Program concentrates on the technical, environmental and economic aspects of the extraction and processing of the Earth’s mineral resources. Students can pursue options in mineral resource engineering, petroleum engineering and mineral processing.

The main employers for Mineral Resource Engineering graduates are the mineral resource industries, oil and gas industries, financial and government institutions, consulting companies, mining equipment manufacturers and dealerships, marketing mine service companies, mineral investment and financial institutions, and research and teaching institutions. The development of an analytical attitude, team work and communication skills are important aims of the Mineral Resource Engineering Program. Participation in field trips to mining and petroleum operations in the Maritime region is a degree requirement and each student is required to share costs.

Opportunity also exists to continue in the MASc, MEng, and PhD programs for those who would like to specialize in areas of Mineral Extraction, Mineral Processing and Petroleum Engineering at Dalhousie.

II. Curriculum and course descriptions

Refer to sections IIB and IIIB, Mineral Resource Engineering Programs, in the Civil and Resource Engineering section of this calendar, page 345.
Chemical Engineering offers two versions of the BEng Program:

A. Chemical Engineering

II. Program Guides

A. Chemical Engineering

Chemical Engineering offers two versions of the BEng Program:

1. Co-op Program
2. Non Co-op Program

Co-op Program

Scheduling

Year Fall Winter Summer
1 Study Term 1 Study Term 2 Free
2 Study Term 3 Study Term 4 Free
3 Work Term 1 Study Term 5 Work Term 2
4 Study Term 6 Work Term 3 Work Term 4
5 Study Term 7 Study Term 8

Years 1 and 2 follow the core program outlined in the Engineering section of this calendar.

Year 3, Work Term 1 (Fall)

- BENG 2043.03 Engineering Economics
- CHEE 3522.03 Chemical Reaction Engineering
- CHEE 3525.03 Process Dynamics & Control
- CHEE 3601.03 Process Thermodynamics

Year 3, Term 2 (Summer)

- CHEE 3601.03 Thermal Unit Operations
- CHEE 3614.03 Chemical Reaction Engineering
- ENGM 3022.03 Applied Numerical Methods
- MATL 3500.03 Materials Engineering
- PEAS 3500.03 Computer-Aided Process Design

Year 4, Work Term 2 (Fall)

- BENG 2043.03 Engineering Economics
- CHEE 3522.03 Chemical Reaction Engineering
- CHEE 3525.03 Process Dynamics & Control
- TECHN 4622.03 Technical Elective I

Year 4, Work Term 3 (Winter)

- CHEE 3601.03 Thermal Unit Operations
- CHEE 3614.03 Chemical Reaction Engineering
- CHEE 3632.03 Process and Plant Design II
- CHEE 3640.03 Process and Plant Design II

Year 5, Term 7 (Fall)

- CHEE 3601.03 Thermal Unit Operations
- CHEE 3614.03 Chemical Reaction Engineering
- CHEE 3632.03 Process and Plant Design II
- CHEE 3640.03 Process and Plant Design II

Year 5, Term 8 (Winter)

- CHEE 3601.03 Thermal Unit Operations
- CHEE 3614.03 Chemical Reaction Engineering
- CHEE 3632.03 Process and Plant Design II
- CHEE 3640.03 Process and Plant Design II

Technical Electives

This list is not exhaustive, nor does it imply that each course will be offered every year. Students should check with the Undergraduate Program Co-ordinator.

- BENG 4142.03 Industrial Biotechnology
- BMNG 5103.03 Introductory Physiology for Biomedical Engineering
- BMNG 5104.03 Cell Biology for Biomedical Engineering
- BMNG 5105.03 Pathobiology for Biomedical Engineering
- BMNG 5106.03 Introduction to Biomedical Engineering
- BMNG 5107.03 Biocompatibility and Biomaterials Design
- BMNG 5108.03 Introduction to Tissue Engineering
- BMNG 5109.03 Biostatic in Ortho.
- BMNG 5120.03 Biomedical Signals
- BMNG 5121.03 Biomedical Signals
- BMNG 5122.03 Principles of Medical Imaging
- ENV 3252.03 Environmental Assessment and Management
- CHEE 3503.03 Materials Science
- CHEE 4502.03 Polymer Science
- CHEE 5303.03 Physical Properties of Materials
- CVIL 4440.03 Water and Wastewater Treatment
- CVIL 4460.03 Solid Waste and Landfill Engineering
- CVIL 6101.03 Advanced Strength of Materials
- CVIL 6147.03 Advanced Theory of Structures
- CVIL 6484.03 Application of Finite Element Method I
- CVIL 6486.03 Application of Finite Element Method II
- CVIL 6515.03 Fibre-Reinforced Plastics
• ECED 3304.03 Microprocessors
• ECED 4801.03 Digital Control Systems
• ECED 4740.03 Biomedical Engineering
• ENVY 5001.03 Environmental Assessment
• ENVY 5002.03 Introduction to Environmental and Occupational Health
• ERTH 5270.03 Applied Geophysics
• FOSS 4810.03 Brewing Science
• IENG 4432.03 Simulation of Industrial Systems
• IENG 4529.03 Industrial and Organizational Psychology
• IENG 4570.03 Company Operations and Management
• IENG 4584.03 Systems Engineering
• IENG 4575.03 Project Management and Control
• IENG 4574.03 Decision and Risk Analysis
• IENG 4578.03 Organizational Aspects of Quality Management
• MECH 4540.03 Energy Management
• MECH 4600.03 Engineering Measurements
• MECH 4650.03 Biomechanical Engineering
• MECH 4610.03 Energy Conversion Systems
• MECH 4620.03 Energy from Renewable Resources
• MECH 4651.03 Heat/Vent/Air Conditioning
• MECH 4693.03 Advanced Control Engineering
• MECH 6510.03 Advanced Mechanics of Solids
• MATE 3823.03 Mechanical Behaviour of Materials
• MATE 3870.03 Ferrous Alloys
• MATE 4720.01 Industrial Process of Materials
• MATE 4610.01 Materials Process Design
• MATE 4620.01 Non-Metallic Materials
• MATE 4630.01 Non-Ferrous Alloys
• MATE 4626.01 Physical Metallurgy and Ceramics
• MATE 4630.01 Introduction to Transmission Electron Microscopy
• MATE 6011.01 Introduction to the SEM and Microprobe
• MATE 6010.01 Fracture of Metallic Materials
• MINE 3550.03 Mineral Processing
• MINE 3620.03 Petroleum Engineering
• MINE 4608.01 Advanced Petroleum Engineering
• MINE 4609.01 Oilfield Drilling and Production
• MINE 4610.01 Solid-Liquid Separation
• PETR 6010.03 Petroleum Reservoir Engineering
• PETR 6030.03 Natural Gas Reserves
• PETR 6040.03 Drilling Engineering
• PETR 6050.03 Production Technology
• CHEE 3522.03 Chemical Unit Operations
• CHEE 3523.03 Mechanical Unit Operations
• ENVE 3500.03 Air Quality
• ENVE 3521.03 Environmental & Industrial Microbiology
• IENG 2005.03 Engineering Economics
• MINE 2200.03 Introducing Geology for Engineers
• PEMS 3500.03 Process Thermodynamics
• Process Engineering and Applied Science 371

There are also a number of graduate courses that students have taken, mainly in Chemical Engineering, Biomedical Engineering, and Petroleum Engineering.

Notes:
1. Seniors may take a postgraduate course as a Technical elective with the approval of the Undergraduate Program Coordinator and the professor offering the course.
2. Not all technical electives are available each year and other elective courses may be available. Please check with the department prior to registration.

Non Co-op Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Study Term 1</td>
<td>Study Term 2</td>
<td>Free</td>
</tr>
<tr>
<td>2</td>
<td>Study Term 3</td>
<td>Study Term 4</td>
<td>Free</td>
</tr>
<tr>
<td>3</td>
<td>Study Term 5</td>
<td>Study Term 6</td>
<td>Free</td>
</tr>
<tr>
<td>4</td>
<td>Study Term 7</td>
<td>Study Term 8</td>
<td>Free</td>
</tr>
</tbody>
</table>

Non-co-op students take the same academic program as the co-op students; however, Term 5 may be taken before Term 5 if desired. In this way, the program can be done in a total of four years.

B. Environmental Engineering

Environmental Engineering offers two versions of the BEng Program:
1. Co-op Program
2. Non-Co-op Program

Co-op Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Study Term 1</td>
<td>Study Term 2</td>
<td>Free</td>
</tr>
<tr>
<td>2</td>
<td>Study Term 3</td>
<td>Study Term 4</td>
<td>Free</td>
</tr>
<tr>
<td>3</td>
<td>Work Term 1</td>
<td>Study Term 5</td>
<td>Work Term 2</td>
</tr>
<tr>
<td>4</td>
<td>Study Term 6</td>
<td>Work Term 3</td>
<td>Work Term 4</td>
</tr>
<tr>
<td>5</td>
<td>Study Term 7</td>
<td>Study Term 8</td>
<td>Free</td>
</tr>
</tbody>
</table>

Years 1 and 2 follow the core program outlined in the Engineering section of this calendar.

During their senior year, Environmental Engineering students can specialize in one or more of the following areas: Air Quality and Pollution Control, Energy and the Environment, Soil and Water Quality and Management, and Waste Utilization and Management.

Years 1 and 2 follow the core program outlined in the Engineering section of this calendar.

Year 3, Work Term 1 (Fall)

Year 3 - Term 5 (Winter)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Study Term 1</td>
<td>Study Term 2</td>
<td>Free</td>
</tr>
<tr>
<td>2</td>
<td>Study Term 3</td>
<td>Study Term 4</td>
<td>Free</td>
</tr>
<tr>
<td>3</td>
<td>Work Term 1</td>
<td>Study Term 5</td>
<td>Work Term 2</td>
</tr>
<tr>
<td>4</td>
<td>Study Term 6</td>
<td>Work Term 3</td>
<td>Work Term 4</td>
</tr>
<tr>
<td>5</td>
<td>Study Term 7</td>
<td>Study Term 8</td>
<td>Free</td>
</tr>
</tbody>
</table>

Years 1 and 2 follow the core program outlined in the Engineering section of this calendar.

Year 3, Work Term 2 (Summer)

Year 4, Term 6 (Fall)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Study Term 1</td>
<td>Study Term 2</td>
<td>Free</td>
</tr>
<tr>
<td>2</td>
<td>Study Term 3</td>
<td>Study Term 4</td>
<td>Free</td>
</tr>
<tr>
<td>3</td>
<td>Work Term 1</td>
<td>Study Term 5</td>
<td>Work Term 2</td>
</tr>
<tr>
<td>4</td>
<td>Study Term 6</td>
<td>Work Term 3</td>
<td>Work Term 4</td>
</tr>
<tr>
<td>5</td>
<td>Study Term 7</td>
<td>Study Term 8</td>
<td>Free</td>
</tr>
</tbody>
</table>
Faculty of Engineering

- ENVE 3412.03 Energy and Environment
- ENVE 3452.03 Soil and Water Engineering
- PEAS 5603.03 Transport Phenomena

Year 4, Work Term 3 (Winter)

Year 4, Work Term 4 (Summer)

Year 5, Term 7 (Fall)
- CHEE 4773.03 Industrial Safety & Loss Management
- CIVL 4401.03 Water & Wastewater Treatment
- ENVE 4401.03 Design Project for Environmental Engineering I
- ENVE 4472.03 Environmental Assessment & Management
- PEAS 5700.03 Law & Ethics in Process Engineering
- Technical Elective

Environmental Engineering – Recommended Technical Electives
- BIOE 4342.03 Industrial Biotechnology
- CIVL 4313.03 Geotechnical Engineering
- CIVL 4460.03 Solid Waste Management and Landfill Design
- ENGM 4675.03 Risk Assessment and Management
- OR IENG 4574 Decision and Risk Analysis
- ENVE 4361.08 Environmental Measurement and Analysis
- ENVE 4411.03 Indoor Environmental Control
- ENVE 4421.05 Biogasification and Biomethanation
- ENVE 4412.05 Waste Disposal and Utilization
- ENVE 4441.05 Contaminant Fate and Transport
- ENVE 4461.05 Solar Energy Utilization
- ERTH 4302.03 Practical Hydraulics
- IENG 4500.03 Optimizations Research Methods
- IING 4529.03 Industrial and Organizational Psychology
- IING 4547.03 Company Operations and Management
- IING 4538.03 Project Management and Control
- MIN 4115.03 Mining and Environment

Note: Technical electives from other departments may be selected subject to Availability and approval by the departments concerned.

Not all technical electives will be offered every year.

Non Co-op Program.

C. Materials Engineering

Materials Engineering offers two versions of the BEng Program:

1. Co-op Program
2. Non-Co-op Program

Co-op Program

Year 3, Work Term 1 (Fall)

Year 3, Term 5 (Winter)
- IENG 3634.03 Chemical Reaction Engineering
- CHEE 4773.03 Industrial Safety & Loss Management
- MA TL 4700.03 Materials Design Project I
- MA TL 4710.03 Ferrous Alloys & Joining of Materials
- MA TL 4720.03 Industrial Processing of Materials
- Technical Elective II

Graduate Course I (for combined BEng/MASc Students Only)

Year 4, Term 6 (Fall)

Year 4, Term 2 (Summer)
- IENG 3634.03 Chemical Reaction Engineering
- CHEE 4773.03 Industrial Safety & Loss Management
- MA TL 4700.03 Materials Design Project I
- MA TL 4710.03 Ferrous Alloys & Joining of Materials
- MA TL 4720.03 Industrial Processing of Materials
- Technical elective II

Graduate Course II (for combined BEng/MASc Students Only)

Year 5, Term 7 (Fall)

Year 5, Term 8 (Winter)
- CHEE 3634.03 Chemical Reaction Engineering
- MA TL 4800.03 Materials Design Project II
- MA TL 4810.03 Materials Process Design
- MA TL 4820.03 Non-Metallic Materials
- MA TL 4830.03 Non-Ferrous Alloys
- MA TL 4840.03 Corrosion and Degradation of Materials
- Technical Elective III

Graduate Course II (for combined BEng/MASc Students Only)

Year 5, Term 9 (Summer) (for combined BEng/MASc;
Optional for BEng)
- Technical Elective I
- Technical Elective II
- Technical Elective III

Graduate Course III (for combined BEng/MASc Students Only)

Sequencing

Year Fall Winter Summer
1 Study Term 1 Study Term 2 Free
2 Study Term 3 Study Term 4 Free
3 Study Term 5 Study Term 6
4 Study Term 7 Study Term 8
5 Study Term 9 Study Term 10
6 Study Term 11 Study Term 12

Non-co-op students take the same academic program as the co-op students, however, Term 6 may be taken before Term 5 if desired. In this way, the program can be done in a total of four years.

Undergraduate book Page 372 Wednesday, March 12, 2014 12:03 PM
Non Co-op Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Study Term 1</th>
<th>Study Term 2</th>
<th>Study Term 3</th>
<th>Study Term 4</th>
<th>Study Term 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>Study Term 1</td>
<td>Study Term 2</td>
<td>Study Term 3</td>
<td>Study Term 4</td>
<td>Study Term 5</td>
</tr>
<tr>
<td>Winter</td>
<td>Study Term 2</td>
<td>Study Term 3</td>
<td>Study Term 4</td>
<td>Study Term 5</td>
<td>Study Term 6</td>
</tr>
<tr>
<td>Summer</td>
<td>Study Term 3</td>
<td>Study Term 4</td>
<td>Study Term 5</td>
<td>Study Term 6</td>
<td>Study Term 7</td>
</tr>
</tbody>
</table>

Non-co-op students take the same academic program as the co-op students; however, Term 6 may be taken before Term 5 if desired. In this way, the program can be done in a total of four years.

Combined BEng - MASc Program Guide

1. Program Entrance Requirements
   To be eligible to enter the Combined BEng/MASc Program, a student must be able to demonstrate an overall average of 70% based on the subjects in the first three academic terms of the Materials Engineering Program.
   Since the first two academic terms of the BEng and combined BEng/MASc Programs are common, students enrolled in the BEng Program may apply for entrance into the combined degree program at any time before the beginning of the seventh academic term.

2. Financial Support
   All students accepted into the BEng/MASc Program will be eligible for financial assistance beginning at the start of the seventh academic term. The assistance will be spread over the remainder of the academic terms and may have a total value of approximately $15,000.
   Part of the financial assistance is derived from money obtained to further specific research objectives on which the student is expected to work for his or her Master’s Thesis. The remainder of the financial support is normally derived from assigned duties as Part-Time Teaching Assistant. A course work Master’s Program (MEng) can be followed but the amount of financial assistance will be considerably reduced.

3. Maintenance of Standing
   In order to maintain standing in the Combined BEng/MASc Program, students must continue to maintain an academic average of B-. Failing this, a student may obtain a BEng Degree by completing the required courses, but will not be eligible for further financial assistance from the Department. However, on graduation, should the student attain an average of B+, he/she may be eligible to pursue graduate studies in the department.

4. Scholarships
   Students in the Combined BEng/MASc Program are encouraged to apply for the usual scholarships and bursaries in order to partially augment the financial support received. Contact the Department for details.

5. Combined BEng/MASc Scheduling
   The combined BEng/MASc Degree follows the program as indicated for the BEng with the addition of two academic terms as follows:
   **Year 6, Term 10 (Fall)**
   - Thesis
   **Year 6, Term 11 (Winter)**
   - Thesis

6. Technical Electives
   Choose three:
   - BIOL 4591.03: Biopolymer Engineering
   - BIOL 4598.03: Environmental Assessment and Management
   - BIOL 4599.03: Project Management and Control

---

D. Minor in Food Science for BSc Major or Honours

The Minor in Food Science is available to students registered in the BSc 20 credit major and honours programs. The requirements are as for the appropriate program with the completion of the following courses to fulfill the Food Science Minor:

- **FOSC 1000: Concepts in Food Science**
- **FOSC 3233: Microbiology**
- **FOSC 3234: Food Chemistry**
- **FOSC 3235: Food Analysis**
- **FOSC 3236: Food Safety**
- **FOSC 4237: Food Preservation**
- **FOSC 4238: Food Quality Assurance**
- **FOSC 4239: Food Microbiology**
- **FOSC 4240: Food Product Development**

---

III. Course Descriptions

A. Biological Engineering Series

**BIOE 3051: Principles of Food Engineering**
This course presents principles of engineering and applications to food processing and unit operations. This course is intended for primarily food science majors, and other non-engineering students. Topics covered are parts and dimensions, unit operations in food processing, material balance, thermodynamics and energy balance, fluid flow, heat transfer, and mass transfer.

**FORMA T: Lecture 2 hours, lab 3 hours
PREREQUISITE: MATH 1200.03 and 1201.00, or ENGM 1011.03 and 1012.03, PHYS 1000X.03
**

**BIOE 4343: Food Science for Engineers.**
This course introduces the fundamental chemical, nutritional and microbiological aspects of food processing. Emphasis is placed on food quality, deterioration and principles of its preservation. Topics covered include: constituents of food (proteins, significance, and nutritive aspects); factors related to quality and deterioration; fats and oils; food additives; and the requirements for food preservation, packaging and storage.

**FORMA T: Lecture 2 hours, lab 3 hours
PREREQUISITE: BIOE 3251.03
**

**BIOE 4342: Industrial Biotechnology.**
This course introduces students to industrial applications of biotechnology. Basic biochemistry and molecular biology are covered in addition to starchchemistry and kinetics for bioprocesses. Modern tools and approaches of biotechnology are presented, followed by application of biotechnology to diverse areas (e.g., the
process into a suitable form for simulation and design. Other topics include CHEE 3544.03: Computer-Aided Process Design.

- vapour-liquid equilibrium and equilibrium constants in chemical reactions.
- properties of pure liquids, properties of solutions, and a comprehensive study of partially miscible components. The course also deals with thermophysical vapour-liquid equilibria in ideal and non-ideal systems including miscible and review is given of concepts in physical chemistry: partial molal quantities and reaction kinetics modelling, size reduction, emulsification, packaging and storage, extension processes, flavouring and flavoring, evaporation and freeze concentration, crystallization, thermal process calculations and microwave heating. As a term project, a food process is simulated using a software package.

B. Chemical Engineering Series

CHEE 3522.03: Mechanical Unit Operations.

This course introduces to the principles and practices involved in contacting, conveying, separating and mixing single and multiphase systems. It includes the flow of incompressible and compressible fluids in conduits and past immersed bodies, as well as the transportation, metering, and mixing of fluids. Unit operations involved in the contacting and separation of phases, such as fluidization, sedimentation and centrifugation, are also studied.

CHEE 3525.03: Separation Processes.

This course provides an introduction to cascade theory and develops fundamentals for design and analysis of staged operations such as leaching, liquid-liquid extraction and distillation. Topics include single-stage operations, multi-stage, counter-current cascade and without refluxes, and binary and multi-component distillation.

CHEE 3530.03: Chemical Engineering Thermodynamics.

The course deals with theory and practice of chemical thermodynamics. A brief review is given of concepts in physical chemistry: partial molar quantities and vapore-liquid equilibria in ideal and non-ideal systems including miscible and partially miscible components. The course also deals with thermophysical properties of pure liquids, properties of solutions, and a comprehensive study of vapore-liquid equilibrium and equilibrium constants in chemical reactions.

CHEE 3544.03: Computer-Aided Process Design.

The course aims to develop the student's ability to solve process design problems using packaged software. Major emphasis is placed on how to translate a flow sheet into a suitable form for simulation and design. Other topics include relational data bases, and design of specific unit operations using both available software and student-developed programs.

CHEE 3550.03: Process Dynamics and Control.

This course provides an introduction to control of chemical processes. The dynamics of behavior of simple processes is analyzed through transfer functions and means of determining the dynamic performance of feedback control systems are presented. An introduction to stability of control systems is made. Procedures for selecting and designing proportional, proportional-integral and proportional-integral-derivative controllers are discussed.

CHEE 3601.03: Thermal Unit Operations.

This course introduces to the principles and practices involved in contacting, conveying, separating and mixing single and multiphase systems. It includes the flow of incompressible and compressible fluids in conduits and past immersed bodies, as well as the transportation, metering, and mixing of fluids. Unit operations involved in the contacting and separation of phases, such as fluidization, sedimentation and centrifugation, are also studied.

CHEE 3634.03: Chemical Reaction Engineering.

This course introduces the subject of chemical reaction engineering. Classical reaction kinetics concerning rate, mechanisms, temperature effects and multiple reactions are studied. The concepts of typical, continuous stirred-tank and plug flow reactors are introduced for the ideal case. Non-ideal reactors and non-ideal flow are considered in the design of chemical reactor systems. Heterogeneous reactions and reactions are also discussed. Emphasis is placed on computational techniques for reactor problem solutions.

CHEE 4702.03: Unit Operations. Lab 1.

This course deals with the control and feedback systems for separations of chemical streams. The dynamics of behavior of processes is analyzed through transfer functions and means of determining the dynamic performance of feedback control systems are presented. Stability and Root Locus Analysis and design considerations, and multivariable systems are covered.

CHEE 4704.03: Separation Processes II.

In this course, students will learn how to apply the fundamental concepts of moment and energy to the design of thermal processing unit operations. Examples include double pipe heat exchangers, shell and tube heat exchangers, plate heat exchangers, coiled heat exchangers, cooling towers, condensers, and filters.

FORMA T: Lecture 2 hours, lab 2 hours
PREREQUISITE: CHEE 3522.03, CHEE 3525.03, CHEE 3530.03, CHEE 3550.03, CHEE 3601.03, CHEE 3634.03, CHEE 3643.03, CHEE 3650.03

CHEE 4720.03: Unit Operations Laboratory.

In this course, students apply the principles of Unit Operations in the laboratory using pilot scale equipment. An emphasis is placed on experimental, analysis and reporting.

FORMA T: Lecture 1 hour, lab 4 hours
PREREQUISITE: CHEE 3522.03, CHEE 3525.03, CHEE 3530.03, CHEE 3550.03, CHEE 3601.03, CHEE 3634.03, CHEE 3643.03, CHEE 3650.03

BIOE 4391.03: Polymeric Biomaterials.

This course provides an introduction to the characterization, fabrication and use of synthetic and naturally-derived polymeric materials to replace or regenerate tissues and organs in the human body. Classes will include a discussion of natural and synthetic macromolecular structure, properties (chemical, physical, mechanical), synthesis, and interactions with the human body. The design and application of polymeric materials in tissue engineering, drug delivery, and prosthetics will also be discussed using specific examples including: blood vessel replacement, artificial pacemakers, skin substitutes, and nerve regeneration.

FORMA T: Lecture 3 hours, lab 2 hours
PREREQUISITE: PHVC 1200.03, CHEM 1021.03, and CHEM 1022.03, or the equivalents

BIOE 4392.03: Biochemical Engineering.

This course focuses on the process design of unit operations in food processing, preservation, packaging and storage. Topics include mass and energy balances, reaction kinetics modelling, size reduction, amination, food dehydration, packaging and storage, extension processes, flavouring and flavoring, evaporation and freeze concentration, crystallization, thermal process calculations and microwave heating. As a term project, a food process is simulated using a software package.

FORMA T: Lecture 3 hours, lab 2 hours
PREREQUISITE: BIOE 3523.03 or equivalent

BIOE 4393.03: Food Engineering.

This course focuses on the process design of unit operations in food processing, preservation, packaging and storage. Topics include mass and energy balances, reaction kinetics modelling, size reduction, amination, food dehydration, packaging and storage, extension processes, flavouring and flavoring, evaporation and freeze concentration, crystallization, thermal process calculations and microwave heating. As a term project, a food process is simulated using a software package.

FORMA T: Lecture 3 hours, lab 2 hours
PREREQUISITE: BIOE 3523.03 or equivalent

CO-REQUISITE: CHEE 3522.03, CHEE 3525.03, CHEE 3530.03, CHEE 3601.03, CHEE 3634.03, PEAS 3500.03

CHEE 4702.03: Unit Operations. Lab 1.

This course deals with the control and feedback systems for separations of chemical streams. The dynamics of behavior of processes is analyzed through transfer functions and means of determining the dynamic performance of feedback control systems are presented. Stability and Root Locus Analysis and design considerations, and multivariable systems are covered.

FORMA T: Lecture 2 hours, lab 2 hours
PREREQUISITE: CHEE 3522.03, CHEE 3525.03, CHEE 3530.03, CHEE 3550.03, CHEE 3601.03, CHEE 3634.03, CHEE 3650.03

CHEE 4704.03: Separation Processes II.

In this course, students will learn how to apply the fundamental concepts of moment and energy to the design of thermal processing unit operations. Examples include double pipe heat exchangers, shell and tube heat exchangers, plate heat exchangers, coiled heat exchangers, cooling towers, condensers, and filters.

FORMA T: Lecture 2 hours, lab 2 hours
PREREQUISITE: CHEE 3522.03, CHEE 3525.03, CHEE 3530.03, CHEE 3550.03, CHEE 3601.03, CHEE 3634.03, CHEE 3650.03

CHEE 4720.03: Unit Operations Laboratory.

In this course, students apply the principles of Unit Operations in the laboratory using pilot scale equipment. An emphasis is placed on experimental, analysis and reporting.

FORMA T: Lecture 1 hour, lab 4 hours
PREREQUISITE: CHEE 3522.03, CHEE 3525.03, CHEE 3530.03, CHEE 3550.03, CHEE 3601.03, CHEE 3634.03, CHEE 3643.03, CHEE 3650.03

BIOE 4702.03: Unit Operations. Lab 1.

This course deals with the control and feedback systems for separations of chemical streams. The dynamics of behavior of processes is analyzed through transfer functions and means of determining the dynamic performance of feedback control systems are presented. Stability and Root Locus Analysis and design considerations, and multivariable systems are covered.

FORMA T: Lecture 2 hours, lab 2 hours
PREREQUISITE: CHEE 3522.03, CHEE 3525.03, CHEE 3530.03, CHEE 3550.03, CHEE 3601.03, CHEE 3634.03, CHEE 3650.03

CHEE 4704.03: Separation Processes II.

In this course, students will learn how to apply the fundamental concepts of moment and energy to the design of unit operations designed for separations of chemical streams. This is intended as a continuation of CHEE 3522.03: Separation Processes. Unit operations including but not limited to absorption/desorption, adsorption, solvent extraction, drying, humidification/deshumidification, solvent extraction, leaching and ion exchange will be covered.

PREREQUISITE: CHEE 3522.03, CHEE 3525.03, CHEE 3530.03, CHEE 3601.03, CHEE 3634.03, CHEE 4720.03

CHEE 4720.03: Unit Operations Laboratory.

In this course, students apply the principles of Unit Operations in the laboratory using pilot scale equipment. An emphasis is placed on experimental, analysis and reporting.

FORMA T: Lecture 1 hour, lab 4 hours
PREREQUISITE: CHEE 3522.03, CHEE 3525.03, CHEE 3530.03, CHEE 3550.03, CHEE 3601.03, CHEE 3634.03, CHEE 4720.03

374 Process Engineering and Applied Science
CHEE 4726.03: Mass Transfer.
Unit operations based on the theory of diffusional mass transfer are discussed. Emphasis is on engineering applications and the understanding of basic design theory. Topics include molecular and turbulent diffusion, interfacial mass transfer, simultaneous heat and mass transfer, and design of mass transfer equipment.
FORMATT: Lecture 3 hours, lab 2 hours.

CHEE 4741.03: Process and Plant Design I.
This course aims to develop the student’s abilities in the synthesis of processing elements into an integrated plant that is capable of achieving a prescribed goal. Various design projects are undertaken to emphasize: process selection and economic evaluation, and detailed design of process equipment as well as optimization of processing subsystems such as distillation systems.
FORMATT: Lecture 2 hours, lab 4 hours
PREREQUISITE: ENGM 2203.03, CHEE 3202.03, CHEE 3222.03, CHEE 3252.03, CHEE 3253.03, CHEE 3544.01, MATL 3508.03, CHEE 3614.03, ENGM 2001.03, CHEE 3601.03 or CHEE 3634.03.

CHEE 4752.03: Process Modelling, Simulation & Control.
This course deals with the formulation of mathematical models describing the dynamic behavior of chemical processes. Numerical methods for analyzing the dynamic response of lumped parameter and distributed parameter systems on digital computers are presented. Frequency response techniques are used to analyze and design control systems. Design methods for control of processes with dead times, inverse response and those requiring control of more than one variable are discussed.
FORMATT: Lecture 2 hours, lab 2 hours, tutorial 1 hour
PREREQUISITE: CHEE 3550.03

CHEE 4760.03: Fundamentals of Combustion.
This course is an introduction to the principles of combustion processes. The properties of premixed gas flames are examined. Diffusion flames and the burning of liquid and solid fuels are studied. Ignition phenomena and spontaneous combustion, with particular reference to safety in the chemical process industries, are examined.
FORMATT: Lecture 2 hours, lab 3 hours

CHEE 4772.03: Environmental Assessment and Management.
This course examines the ecological impacts of human activities with regard to water, air and soil pollution. Ecological theory and practice are reviewed and methods of environmental regulation and management considered in the light of the principles of sustainability and maintenance of biodiversity. Lecturers will include representatives of environmental agencies and private companies. Tutorials will be devoted to the preparation and presentation of hypothetical environmental impact statements and assessments.
FORMATT: Lecture 3 hours, tutorial 2 hours
CROSS-LISTING: ENVE 4772.03

CHEE 4773.03: Industrial Safety and Loss Management.
Topics covered in this course include: history of health and safety; causes and effects of loss; policy development; loss control and health basics; emergency preparedness and standards; hazardous identification; risk process design; inspection and investigation processes; measurement, evaluation and audits of OHS & program elements; legislation.
FORMATT: Lecture 3 hours, tutorial 2 hours
PREREQUISITE: CHEE 3420.03 or PEAS 2212.03, PEAS 3700.03
EXCLUSION: CHEE 4701.03

CHEE 4791.03: Research Project I.
The course objective is to provide experience in the application of engineering principles to the solution of specific problems in Chemical Engineering. A research project is chosen in collaboration with a particular faculty member. The student then prepares a work plan, carry out a literature search pertinent to the problem, designs and experimentation setup, if needed, and arranges for the acquisition of necessary equipment. Interim and final progress reports are required in both written and oral formats.
FORMATT: Lecture 2 hours, lab 3 hours

CHEE 4802.03: Unit Operations Lab II.
This course is a continuation of CHEE 4802.03, where additional Unit Operations experiments will be conducted, analyzed and reported.
FORMATT: Lecture 1 hour, lab 6 hours
PREREQUISITE: CHEE 4702.03

CHEE 4803.03: Oil and Gas Processing.
This course provides an overview of the oil and gas industry as a whole, introducing the typical technologies, processes and anti-operations. Topics covered include: natural gas recovery and purification, and the properties of bitumen, its recovery, and subsequent refinement. Specific emphasis is placed on detailed design of unit operations for petroleum upgrading and the interrelation between processes for recovery of gases and the conversion of petroleum products.
PREREQUISITE: CHEE 3601.03, CHEE 4701.03, CHEE 3614.03 or instructor approval.

CHEE 4842.03: Process and Plant Design II.
This course is a continuation of Process and Plant Design I, but emphasizes the synthesis of whole systems. Design projects cover process identification and selection, material and energy balance, system sensitivity to various parameters and preliminary process optimization, design and specification of processing units, plant layout, costing and economic evaluation.
FORMATT: Lecture 2 hours, lab 3 hours
PREREQUISITE: CHEE 4741.03

CHEE 4854.03: Computer Process Control.
This course deals with digital computer control of chemical processes. Methods for analyzing and designing control systems using z-transforms are covered. Experience is provided in the use of currently popular control methods, such as model predictive control. An introduction is given for other advanced techniques, such as adaptive control, optimal control and stochastic control.
FORMATT: Lecture 2 hours, lab 3 hours
PREREQUISITE: CHEE 3525.03 or instructor’s permission

CHEE 4856.03: Process Optimization.
The course deals with the study and application of optimization techniques to engineering problems, with particular emphasis on chemical processes. Topics include analytical and numerical techniques for optimization of single and multi-dimensional problems, linear programming, nonlinear programming and dynamic programming. The course employs available computer software and student-developed programs to solve the problems.
FORMATT: Lecture 2 hours, lab 3 hours

CHEE 4862.03: Fundamentals of Combustion Engineering.
In this course, the principles of combustion processes (studied in Fundamentals of Combustion) are applied to industrial applications. The properties of solid, liquid and gaseous fuels are discussed. Various burners systems and the importance of combustion aerodynamics in boilers, furnaces and turbines are studied. The method of determining boiler and furnace efficiency and an introduction to pollution control are presented.
FORMATT: Lecture 2 hours, lab 3 hours
PREREQUISITE: CHEE 4703.03

CHEE 4892.03: Research Project II.
This course is a continuation of Research Project I. The student conducts the planned research work, analyzes the data obtained and critically evaluates the findings. Written and oral progress reports are required at mid-term. A written report and oral presentation are required at the end of the term.
FORMATT: Lecture 2 hours, lab 3 hours
PREREQUISITE: CHEE 4791.03

C. Environmental Engineering Series
ENVE 3251.03: Environmental and Industrial Microbiology.
The principles of microbial communities are applied to biological systems. Emphasis is placed on microbial populations in air, soil and water. Further investigation includes microorganisms found in food, aquaculture and mining industries. Applications of microbial ecology to agriculture, industry, biotechnology and environment are examined.
FORMATT: Lecture 3 hours, lab 3 hours
PREREQUISITE: BIOL 1030.03
ENVE 3412.03: Energy and Environment.
This course deals with energy sources and consumption in various systems. Energy conservation and utilization of renewable energy sources are emphasized. The prediction, nature, effects and control of natural surface and sub-surface waters and wet-land and surface pollutants in catchments are considered. Design flood hydrograph, flood-routing, porous media flow and solute sources prediction techniques are presented. Energy dissipating structures used to control flood flows which are discussed include terraces, dams, deep intakes, grassed swales, culverts and small earth dams. An earth dam design project extends over the course duration.

ENVE 3500.03: Air Quality.
This course covers sources, the impact on health and the environment, atmospheric chemistry, fate and transport and the measurement and modelling of atmospheric pollutants. The application of regulatory computer models to air quality case studies will be demonstrated in laboratory classes. In addition, field and laboratory classes will provide hands-on experience of measuring and characterizing air pollutants. Problem solving sessions are used to illustrate the application of meteorology, measurement and models to determine the sources and impact of air pollutants at various receptors found both outdoor and indoors.

ENVE 4000.03: Small Watershed Hydrology.
Following an overview of the nature of hydrologic data and models, emphasis is placed on the impacts of energy development and consumption on the aquatic environment. The synthesis of complete hydrographs. Components examined include precipitation, infiltration, evapotranspiration, subsurface and surface flow. The structure and application of selected current models are presented.

ENVE 4342.03: Industrial Biotechnology.
This course introduces students to industrial applications of biotechnology. Basic biochemical and molecular biology are covered in addition to stoichiometry and kinetics for bioprocesses. Modern tools and approaches of biotechnology are presented, followed by application of biotechnology to diverse areas (e.g., food processing, agriculture, pharmaceutical and medical processing industries). This course is suitable for engineering science students who wish to pursue employment in the biotechnology sector with little/no prior knowledge of biotechnology or genetic engineering.

ENVE 4411.03: Indoor Environment Control and Air Quality.
The course deals with the design of heating, ventilating and air conditioning systems for controlled environment facilities such as animal housing, residential and commercial buildings. Indoor air quality for humans and animals is discussed in relation to current methods of environmental control and energy conservation in buildings. Completion of an assigned term project is a part of this course.

ENVE 4412.03: Biogeochemistry and Bioremediation.
Following an overview of fresh water and ocean geochemistry, the primary production of biogeochemical cycles in rivers, lakes and the ocean are studied. Oil spills, their impact on the ecosystem and remedial measures are investigated. Design and maintenance of wetlands as treatment systems are presented. The sources of environmental pollutants and the health, environmental, and socio-economic implications of pollutants are studied. The application of various bioremediation technologies to restore contaminated sites is discussed.

ENVE 4432.03: Waste Disposal and Utilization.
This course deals with sources of pollution and their effects on air, water, and soil qualities. The physical, chemical and biological treatment processes of various types of waste are discussed in relation to pollution control. Physical, chemical and microbiological analyses of various types of wastes are done in the laboratory periods. This course includes a term project, field trips, and seminars.

ENVE 4612.03: Waste Disposal and Utilization.
The physical, chemical and biological properties of liquid and solid wastes are discussed and related to current handling and disposal methods. Solution to problems of pumping liquid waste, lagoon design and holding facilities are presented. Methods of land application of wastes are compared based on pollution and fertilizer issues. Technological advances of utilization of wastes for the production of compost, single cell protein, alcohol, fertilizer, biogas, and chemicals are discussed. The course includes a term project, field trips, and seminars.

ENVE 4621.03: Atmospheric Air Quality.
This course will cover fundamentals of air quality. Sources and characteristics of atmospheric pollutants will be introduced as well as methods for sampling and analyzing atmospheric processes. The thermodynamics and fluid mechanics of the planetary boundary layer, and the behavior of plumes, will be primary focus. Contaminant transformations in the atmosphere, as well as wet and dry deposition of pollutants, will be covered. Other topics will include computer models, standards/legislation and climate change.

ENVE 4641.03: Contaminant Fate and Transport.
This course focuses on the quantitative analysis of mechanisms that control the fate and transport of contaminants in the environment. The occurrence, movement, and transformation of contaminants in a variety of environmental media, including surface water, terrestrial ecosystems, and the atmosphere are covered. A 3rd field lab will be held at the beginning of the semester in which...


students will gain experience in (i) sampling environmental media, and (ii)characterizing transport processes in terrestrial and aquatic environments. FORMUL: Lecture 3 hours, PREREQ: ENVE 3482.03, CIVL 3010.03, PES 2002.03, CIVL 3480.03, ENVG 3502.03, CIVL 4720.03

ENVE 4651.03: Solar Energy Utilization.
The course will cover the principles and practice of the design and performance analysis of active and passive solar heating systems. Topics covered include: estimation of solar radiation availability, analysis of solar collectors and sun spaces, sensible and latent heat thermal storage. Procedures for the design and optimization of solar thermal systems are presented. A design project on the application of solar energy in residential, industrial or agricultural sectors is required. FORMAT: Lecture 3 hours, lab 3 hours PREREQ: ENVE 3472.03 or equivalent

ENVE 4772.03: Environmental Assessment and Management.
This course examines the environmental impact of human activities with regard to water, air and soil pollution. Ecological theory and practice are reviewed and methods of environmental regulation and management considered in the light of the the concepts of sustainability and maintenance of biodiversity. Lectures will include presentations by government and corporate regulators and managers. Tutorials will be devoted to the preparation and presentation of hypothetical environmental impact statements and assessments. FORMAT: Lecture 3 hours, tutorial 1 hour CROSS-LISTING: CHEE 4772.03

ENVE 4872.03: Air Pollution Control.
This course deals with air pollution emanating from the standpoint of its generation and control. Both gaseous and particulate matter emitted from combustion and industrial sources are considered. FORMAT: Lecture 2 hours, tutorial 3 hours EXCLUSION: CHEE 4872.03

D. Food Science Series

FOSC 1000.03: Concepts in Food Science.
This course will present an overview of the discipline of Food Science and Food Processing. The overview will include discussions of topics such as food preservation and quality, food packaging, shelf life and food safety. Selected food processing operations will also be discussed in further detail. Food safety issues such as food infection and intoxication and HACCP will be introduced. FORMAT: Lecture 3 hours, lab 3 hours CO-REQ: BIOB 1010.03, BIOI 1011.03

FOSC 2010.03: Food Commodities.
This course will study the basic scientific principles underlying the processing of varying food commodities. General preservation methods such as freezing, dehydration, thermal processing, irradiation and microwave heating and their applicability to various foods will be examined during lectures and tours to industrial food processing plants. The principles of food manufacturing, preservation, distribution, and marketing of food materials will be related to basic food science principles. FORMAT: Lecture 3 hours, lab 3 hours

FOSC 3010.03: Food Chemistry.
This course will examine the molecular basis of basic constituents common to foods products and relate this behavior to the structure and properties of food constituents. Topics covered will include water, carbohydrates, proteins and lipids and micro-nutrients such as vitamins and minerals, pigments and flavors. Chemical processes such as browning, enzyme reactions and emulsification will also be examined. The function of ingredients, additives and nutrient deficiencies will be examined. FORMAT: Lecture 3 hours, lab 3 hours PREREQ: CHEM 2441.03

FOSC 3020.03: Food Analysis.
This course will cover the theory and practice used in modern food analysis. The analysis of proteins, lipids and carbohydrates will be presented. As well, the principles of spectroscopy, titration, electrophoresis and chromatography will be discussed and demonstrated using various foods. Other analytical techniques specific to foods such as reflective colorimetry, texture profile analysis and water activity measurement will be presented. FORMAT: Lecture 3 hours, lab 3 hours PREREQ: CHEM 2441.03

FOSC 3030.03: Food Quality Assurance.
This course will examine techniques employed to ensure the processing and delivery of quality food products. Topics covered will include quality management systems, statistical quality control, government regulations and food legislation. Details of Hazard Analysis Critical Control Point (HACCP) planning will be covered in detail. Quality assurance systems employed in government and the food industry will be examined. FORMAT: Lecture 3 hours, tutorial 3 hours PREREQ: STAT 1060.03, FOSC 3010.03

FOSC 3070.03: Food Processing.
This course will examine various unit operations in food processing. Topics examined will include thermal processing via general and formula methods, blanching, pasteurization, beer processing and food packaging. Other food processing techniques including drying and freezing will be examined. The unit operations of various food and seafood commodities will be examined in detail. FORMAT: Lecture 3 hours, lab 3 hours PREREQ: FOSC 3010.03, BIOE 3511.03

FOSC 3080.03: Food Microbiology.
This course is designed to introduce students to current aspects of food microbiology with special emphasis on spoilage organisms and foodborne pathogens. Subjects covered will include food infection and intoxication, factors affecting microbial growth and death, sanitation and predictive microbiology. Special emphasis will be given to the microbial ecologies associated with foods from agricultural and marine sources. The characteristics of emerging food pathogens and their influence on the safety of the food supply will be examined. Rapid methods of detection of foodborne microorganisms will be studied. FORMAT: Lecture 3 hours, lab 3 hours PREREQ: BIOL 2010.03 or MICR 3000.03

FOSC 4020.03: Chemistry - Fats, Oils, Lipids.
The difference in physical and chemical properties of natural fatty acids are correlated with the physical nature of fats, oils and lipids, and the chemical combinations of fatty acids with glycerol, fatty alcohols, steroids and other chemical materials. Methods of separation such as chromatography, solubility and crystallization are explained in terms of the molecular properties. Important industrial processes and products are included. FORMAT: Lecture 3 hours, lab 3 hours PREREQ: FOSC 3010.03 or CHEM 2230.03 CROSS-LISTING: CHEE 4020.03

FOSC 4030.03: Food Product Development.
This course examines the process of food product development and techniques used to measure food sensory aspects, shelf life and food stability. Topics covered will include food structure, colorimetry, shelf life modelling and sensory analysis. This course has been designated as a “capstone” course and it will incorporate concepts from other food science courses to develop problem solving and critical thinking abilities. FORMAT: Lecture 3 hours, lab 3 hours PREREQ: FOSC 4010.03

FOSC 4081.03: Brewing Science.
This course will examine unit operations employed during the production of malt and beer. Brewing, fermentation and packaging aspects of beer production as well as brewing quality assurance, collaflaefl, flavor and haze stability will be discussed. FORMAT: Lecture 3 hours, lab 3 hours PREREQ: FOSC 3080.03

FOSC 4091.03: Food Safety and Biotechnology.
This course will teach students biological aspects of safety in our food and water supply. The course is divided into three modules: (1) Introduction to molecular biology and biotechnology methods used to detect disease-causing microorganisms, create genetically modified organisms and manipulate food related organisms, (2) Food hygiene and contamination, and (3) Current issues in public health and safety of our food and drinking water supply. FORMAT: Lecture 3 hours, lab 3 hours PREREQ: FOSC 3080.03 EXCLUSION: FOSC 4090.03
Process Engineering and Applied Science

EXCLUSION: MATL 3601.03 EXCLUSION: MATL 4750.03 EXCLUSION: MATL 4750.03

MATL 3500.03: Materials Engineering
This course covers properties of engineering materials with their structure. Laboratory objectives include preparation of reports in publication format and illustration of lecture material. Basic concepts of crystallography, chemical bonding and binary phase diagrams are introduced. These are used to describe properties of metallic and nonmetallic materials and how these may be controlled by engineers. Materials discussed include ferrous and nonferrous metals and alloys, composites, ceramics and semiconductors.

FORMA T: Lecture 2 hours, lab 3 hours
PREREQUISITE: FOSC 3060.03, FOSC 3070.03, FOSC 3080.03 EXCLUSION: MATL 3500.03

MATL 3510.03: Extraction of Materials
The lecture portion of this course covers the fundamental principles involved in the high temperature extraction of materials from their ores. Included are descriptions of the equipment used in unit operations such as roasting, smelting and refining and the application of these operations to the production of iron and steel and the more common nonferrous metals. The laboratory portion of this course consists of practice in stoichiometric mass balance and thermal calculations of common pyrometallurgical processes for extracting materials.

FORMA T: Lecture 3 hours, lab 3 hours
PREREQUISITE: FOSC 3060.03, FOSC 3070.03, FOSC 3080.03 EXCLUSION: MATL 4500.03

MATL 3520.03: Structure of Materials
This course presents the following topics: the electronic structure of materials, fundamentals of crystallography, electron motion in the space lattice, introduction to computer X-ray diffraction and X-ray diffraction techniques, and the crystal structures of metals and nonmetallic and binary phase diagrams are discussed from the structural point of view.

Laboratory experiments include preparation and evaluation of X-ray films and diffraction charts, structural investigation of binary alloys, and crystal size structure.

FORMA T: Lecture 2 hours, lab 3 hours EXCLUSION: MATL 3801.03

MATL 3600.03: Mechanical and Physical Behaviour of Materials
This course is designed to give students a fundamental understanding of how materials behave as mechanical and physical forces are applied to the material structure so as to alter this behavior. Core topics include basic crystallography, dislocation theory, strengthening mechanisms (dislocation, precipitation hardening, and ceramic reinforcements), and mechanical testing. For the latter, specific emphasis is placed on the techniques of tensile, creep, and fatigue testing.

FORMA T: Lecture 3 hours/lab 3 hours EXCLUSION: MATL 3620.03 and MATL 3621.03

MATL 4700.03: Materials Design Project I.
The course focuses on the preparation, characterization, and application of engineering principles to the solution of a specific problem in Materials Engineering. A research project is chosen in collaboration with a particular faculty member. The student then prepares a work plan, carries out a literature search, designs the experimental setup as needed, and arranges for the acquisition of necessary equipment. The student conducts the planned research work, analyses the data obtained and critically evaluates the findings. Oral progress reports are required. A written report and an oral presentation are required at the end of the term.

FORMA T: Lab 3 hours PREREQUISITE: MATL 3500.03 EXCLUSION: MATL 4700.03

MATL 4710.03: Ferrous Alloys and Joining of Materials.
The course covers the iron-carbon system, including the transformation products of austenite, alloying elements and combined thermo-mechanical treatments. Specific classes of steels, ranging from the simple plain carbon steels to the duplex stainless steels, are considered. The course also discusses the fusion welding of a representative selection of steels. Fusion welding process variables are studied together with the metallurgy of the weld metal and the heat-affected zone.

FORMA T: Lecture 3 hours, lab 2 hours PREREQUISITE: MATL 3500.03 EXCLUSION: MATL 4710.03

MATL 4720.03: Industrial Processing of Materials.
The fundamentals of metal working in relation to rolling, forging, extrusion, and drawing are studied. In each section the physical and mechanical metallurgical principles involved are considered as in the role of technology. Case studies for a variety of alloys are considered. Hands-on laboratory experiments are included to reinforce key topics.

PREREQUISITE: MATL 3500 EXCLUSION: MATL 4720.03

MATL 4800.03: Materials Design Project II.
The objective of this course is to provide experience in the design of materials to the solution of a specific problem in the realm of design project. The student then prepares a work plan, carries out a literature search, and designs an experimental setup. The student conducts the planned research, and uses the data and critically evaluates the results. Students demonstrate their findings through written reports and an oral talk at the end of the term.

FORMA T: Lab 3 hours PREREQUISITE: MATL 3500.03 and (MATL 4700.03 or MATL 4704.01)

MATL 4805.03: Electrochemical Processing of Materials.
The course discusses principles of electrochemistry and electrochemical engineering as they apply to the design of processes for the production of materials. The theory and application of various electrochemical techniques such as electroplating, electroforming, electromachining, electrorefining, and fused-salt electrolysis are included. A high level of review and the development of electrochemical sensors and devices using solid state electrolytes is presented. Surface modification by electrochemical means is also discussed.

FORMA T: Lecture 2 hours, lab 3 hours CROSS-LISTING: MATL 6805.03

MATL 4806.03: Particulates in Materials Engineering.
The course covers the preparation, characterization, physical and chemical properties and processing of powders in materials processing including agglomeration, gas-solid reactions, sintering and hot pressing.

FORMA T: Lecture 2 hours, lab 3 hours CROSS-LISTING: MATL 6806.03

MATL 4810.03: Materials Process Design.
This course focuses on the design of new metallurgical plants, processes and products based on knowledge acquired in previous core courses. Material and heat
balances, metal economics, design and optimization aspects are covered. Groups of students undertake design projects aiming at modernization of existing plants or establishing new plants operating on new technology. Emphasis is placed on process selection and control, economic evaluation, detailed design of process equipment, sizing and costing and optimizing the processing units.

**FORMAT:** Lecture 2 hours/lab 3 hours

**PREREQUISITE:** MATL 3500.03

**EXCLUSION:** MATL 4802.03

---

**MATL 4813.03: Iron and Steel Production.**

This course discusses factors affecting the global iron and steel industry with particular reference to Canadian participation. These factors include the supply of raw materials, new technology, environmental concerns and economics. The future of any metallurgical industry is influenced by many concerns, not all of which are technical.

**FORMAT:** Lecture 2 hours, lab 3 hours

**PREREQUISITE:** MATL 3510.03

---

**MATL 4817.03: Metallurgical Processing.**

This course covers the principal practices related to metallurgical processing and the marketing of metals, including modification of concentrations (smelting, refining, briquetting). Descriptive outlines of metallurgical processes such as iron and steel, lead, aluminum and zinc production are presented, along with utilization of fuels for metallurgical purposes (coal, coke, oil).

**FORMAT:** Lecture 3 hours

---

**MATL 4820.03: Non-Metallic Materials.**

The course includes a description of the chemical and structural characteristics of various common non-metallic materials as well as manufacturing methods. A number of applications for such materials are considered including glass, ceramics, refractories, solid electrolytes and electronic materials. The chemistry of multi-component systems are also discussed. The laboratory experiments are designed to illustrate the lecture material.

**FORMAT:** Lecture 2 hours, lab 2 hours

**EXCLUSION:** MATL 4803.03

---

**MATL 4825.03: Solidification and Casting.**

The fundamental principles of solidification and practical applications in the casting industry are dealt with in this course. The topics covered include nucleation processes, the growth of single crystals, phase front, cellular and dendritic solidification in single and polycrystalline alloys, solidification of castings, ingot moulding and core making processes, moulding sands, design of runners and gates, and the melting of metals. The laboratory experiments cover the growth of single crystals of pure metals, alloys, and superconductors, patterns, mould and core making, and the casting of commercial alloys.

**FORMAT:** Lecture 2 hours, lab 3 hours

---

**MATL 4826.03: Physical Metallurgy and Ceramics.**

The first portion of this course covers the physical metallurgy, properties and uses of the principal industrial alloys. The remainder of the course deals with the structure of important ceramic materials such as glass, porcelain and refractories, their properties, and the processing and applications of ceramics. The laboratory experiments will illustrate the principles discussed in the lectures.

**FORMAT:** Lecture 2 hours, lab 3 hours

---

**MATL 4830.03: Non-Ferrous Alloys.**

The objective of this course is to introduce students to the structure, properties, and processing of different types of non-ferrous alloys. Alloys of principal interest include those that are prevalent on aluminium, copper, nickel, and titanium. Select applications for these industrially-important material are also reviewed.

**FORMAT:** Lecture 3 hours/lab 3 hours

**PREREQUISITE:** MATL 3500.03

---

**MATL 4840.03: Corrosion and Degradation of Materials.**

This course introduces the student to the basic theory of corrosion as well as the basic principles of hydrometallurgy. Students will also be introduced to the different types of corrosion and the practices of corrosion prevention and remediation.

**FORMAT:** Lecture 3 hours/lab 3 hours/tutorial 3 hours

**PREREQUISITE:** MATL 3500.03 and (MATL 3612.03 or PEAS 3500.03)

**EXCLUSION:** Students that have passed MATL 3611.03 cannot register for this course.

---

**F. Process Engineering Series**

**PEAS 2201.03: Fundamentals of Process Engineering.**

The main objective of this course is to develop the student’s ability to perform mass and energy balances on non-reactive and reactive processes. Introductory topics include systems of units and a study of process variables such as temperature, pressure and flow rate. Also covered are fundamental properties of multiphase systems, including phase equilibria, vapour pressure, and Raoult’s and Henry’s Laws. Emphasis is placed on developing problem-solving skills and applying a consistent approach to the analysis of process systems.

**FORMAT:** Lecture 3 hours, tutorial 2 hours

**PREREQUISITE:** ENGI 2102.03

---

**PEAS 2202.03: Fundamentals of Environmental Engineering.**

This course will focus on sources of environmental pollution, the effects of pollutants on living and non-living systems, and the processes by which pollutants are generated or by which their effects can be minimized or remediated. Lectures are supplemented by tutorials which include plant speakers, case studies and field trips.

**FORMAT:** Lecture 1 hour, lab 2 hours

**PREREQUISITE:** CHEM 1021.03 and CHEM 1022.03

---

**PEAS 2203.03: Organic Chemistry for Process Engineers.**

Students will first develop an understanding of structure and bonding in organic compounds. With this background, the chemical and physical properties of functional groups will be introduced, with a focus on applications relevant to process engineers. Specifically, the synthesis and chemical reactions of commercially important molecules will be highlighted. Physical separations (i.e., distillation, crystallization) used in organic synthesis and spectroscopic methods of analysis will also be described.

**INSTRUCTOR(S):** Lecture 3 hours

**PREREQUISITE:** CHEM 1021.03 and CHEM 1022.03

---

**PEAS 3500.03: Process Thermodynamics.**

This course covers the application of thermodynamic concepts such as entropy, free energy, activities and phase diagram relations, for pure substances and solutions (aqueous and molten) in biological, chemical and materials processing systems. The application of computer programs to the analysis of thermodynamics in chemical reactive systems is demonstrated. Problem solving sessions are used to illustrate applications of these concepts in processing.

**FORMAT:** Lecture 3 hours/tutorial 3 hours

**PREREQUISITE:** ENGI 2102.03, PEAS 2201.03, ENGI 2101.03

---

**PEAS 3600.03: Transport Phenomena.**

This course covers the physical, chemical and thermal factors affecting the mechanisms of heat and mass transfer in biological, chemical and materials processing systems. The principles of physical and mathematical modeling are demonstrated in real applications in the fields of biological, chemical and materials engineering. Problem solving sessions to illustrate the application of the above concepts to processing are given.

**FORMAT:** Lecture 3 hours/tutorial 3 hours

**PREREQUISITE:** PEAS 2201.03, ENGI 2101.03 or ENGI 2102.03

---

**PEAS 3700.03: Law and Ethics in Process Engineering.**

This course will provide students with the legal and ethical framework for the practice of engineering. The sections on ethics will introduce ethical theories and demonstrate how these theories are embodied in various engineering codes of ethics. It will also show how these theories, as well as the codes of ethics, can be used to address real ethical dilemmas that can arise in the practice of engineering. Case studies will be used extensively to guide the students through this. The course will also introduce the student to an understanding of its relation to the practice of engineering. It will cover the basics of what the student should know about contract law, professional liability and tort law, and intellectual property law. Because the students will be required to submit a good number of written assignments, the first third of the course will focus on improving their writing skills.
Faculty of Health Professions

I. Introduction

The Faculty of Health Professions recognizes that Affirmative Action is required to increase the admission of and number of graduates from underrepresented groups. Aboriginal peoples, African Canadians and Persons with (dis)Abilities are part of these underrepresented groups to apply to and graduate from the Faculty of Health Professions.

As a matter of priority, the Faculty will develop strategies to identify and create recruitment and support systems that will encourage and support members of these underrepresented groups to apply to and graduate from the Faculty of Health Professions.

Policy Statement on Interprofessional Health Education

Students in the Faculties of Dentistry, Health Professions and Medicine are required to participate in interprofessional health education activities. These activities, together with specific program requirements, are currently evolving and in transition and are integrated into the curricula of individual programs. Participation is mandatory. The objective of interprofessional education in the Faculty of Health Professions includes developing:

- knowledge and understanding of, and respect for, the expertise, roles and values of other health and human service professionals;
- understanding the concept and practice of patient/client/family-centred care;
- effective communication, teamwork and leadership skills applied in interprofessional contexts;
- positive attitudes related to the value of collaboration and teamwork in health and human service contexts;
- an understanding, from a multi-disciplinary perspective, of the Canadian health and social systems; the legal and regulatory foundation of professional practice, how health and human service institutions are organized and operate, and how different health and human service professions contribute to the systems and institutions.

Students in the entry-to-practice programs in the Faculty of Health Professions, are required to maintain enrolment in HPHR 4900 (see calendar section on Health Professions Interprofessional Health Education) for the duration of their studies. Successful completion of this class is a requirement for graduation in these programs, and will be recognized further with the awarding of a special Certificate in Interprofessional Collaboration; to be presented by the Faculty of Health Professions. For more information, students should contact their specific school/college.

I. Statement Regarding Criminal Records Check

The Faculty of Health Professions of Dalhousie University does not require a Criminal Records Check or other screening procedure (e.g., Vulnerable Sector Screen) as a condition of admission into its programs. However, students should be aware that such record checks or screening requirements relevant to clinical, fieldwork or other placements or experiences related to an academic class assignment, which, in some instances, may be a requirement for graduation. It is the student’s responsibility to have such procedures completed.

Each facility may refuse to accept students on the basis of information contained in the record check or other screening procedures. If the student is unable to complete a clinical requirement due to a failure to meet the record check or screening requirements of the facility, or if the student is refused access to the facility on the basis of information provided, such a student may fail the class, and as a result, in some instances, may not be eligible for graduation or placement.

Students should check with their School/College for details concerning any record checks or screening requirements relevant to clinical, fieldwork, or placements in their particular program. Note that facility requirements may change from time to time and are beyond the control of the University. Students should also be aware that some professional regulatory bodies may require a satisfactory record check as a condition of professional license.

Practicum/Fieldwork Placements Outside Halifax

Students enrolled in programs of study in the Faculty of Health Professions (Health Sciences, Nursing and Human Performance, Social Work and Pharmacy) are advised that they may have to do some or all of their required clinical education/fieldwork at sites outside Halifax, and hence must have to incur additional personal expenses for travel and temporary accommodation.

In some situations, sites may require a payment to the site for support of clinical education/fieldwork supervision, and some sites may require separate disability insurance in lieu of eligibility for Worker Compensation coverage. Such costs are the responsibility of the student.
Student Disclosure of Health Information
Faculty of Health Professions

Students registered in this Faculty are encouraged to inform both the School/College and the field work learning sites if they have a health concern that has the potential to compromise client, student and/or agency personal safety and/or has the potential for limiting their ability to learn and perform their role as learner.

For the purposes of this policy, the term health concern refers to any cognitive, affective, and/or physical health problem, injury, or condition that may place the student and/or others at risk and/or inhibit the student’s learning ability and performance.

A. Guidelines for Disclosure

The student has the right to decide if disclosure of health information is appropriate. The method, timing, and extent of the disclosure is at the student’s discretion (for consultation options, see below). Early disclosure of the following information regarding the health concern may be helpful to students in the academic and/or field work sites.

To disclose this information:
1. Clearly describe the nature of the health concern and the potential limitations with regard to the learning tasks expected in either the academic or field work site. Appropriate verification of the information may be required.
2. List any adaptations, modifications, and/or safety procedures that may be required in planning the student’s learning experiences in either setting.
3. Provide clear and appropriate advice regarding the management of this health concern.

If the disclosure of health information in field work and/or academic sites produces difficulties, students are encouraged to report these difficulties immediately to the appropriate person(s) within both the field work site and/or within their educational program (see below). Discrimination in any form will not be tolerated.

Students are advised to make the initial contact with the persons with whom they are most comfortable from the lists below. Those individuals would be available for consultation/advocacy:
- Academic/faculty advisor
- Field work coordinator(s)
- Director of the School or College where student is enrolled
- Dean of the Faculty of Health Professions
- Advisor to Students with Disabilities, Dalhousie University
- Dalhousie/king’s Association of Students with Disabilities
- Human Rights Commission

College of Pharmacy
- Preceptor
- Site coordinator
- Externship administrator

School of Nursing
- Clinical instructor
- Class professor
- Associate Director, Undergraduate Student Affairs
- Nurse Practitioner/Acute Nursing Program Coordinator

School of Occupational Therapy
- Preceptor
- Field site director
- Provincial or Atlantic Region fieldwork education coordinators

School of Physiotherapy
- Clinical supervisor
- Facility clinical coordinator
- Provincial coordinator

School of Social Work
- Agency field instructor
- Program coordinator
- Faculty field instructor

School of Health Administration
- Preceptor

School of Human Communication Disorders
- Clinical Educator

School of Health and Human Performance
- Student Services Administrator

QEII–Dalhousie School of Health Sciences
- Clinical Education Coordinator
Disability Management

Location: Forrest Building, Room 213
5699 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2950
Fax: (902) 494-3025
Email: disability.management@dal.ca
Website: http://www.dal.ca/occupationaltherapy

382 Disability Management

A. Purpose of Program

The Certificate in Disability Management addresses specific goals and objectives for the education of prospective disability case managers and vocational consultants by providing an understanding of injury, its impact and recovery processes. In addition, the Program responds to changes in workplace health and safety programs, legislation, regulations, and practices to changes in the health care system in general. While the main paradigm of the program is grounded in the health, rather than the medical model, its conceptual basis has roots in health and medical sciences, the social sciences, and the physical sciences as related to ergonomics and human kinesics.

The goal of the Certificate in Disability Management program is to prepare Disability Management team members who: provide effective, efficient and safe coordination of services, facilitate a team-oriented approach, convey understanding of the health impact of injury, convey an understanding of the impact of injury on work, develop decision-making skills and develop management skills.

B. What is Disability Management

Returning to work for injured workers can be influenced by many medical, physical and psychological factors that may impede recovery. There is the belief that the needs of workers and their employers are central to the disability management process, and workers must play an active role. A requirement in the worker-centered process is the need to ensure that all the facts about injuries/illnesses, treatments, and entitlements are known to these injured workers and that clear decision-making is exercised by all parties to ensure both continuity in the return to work process and establishment of trusting relationships among injured workers, their employers, and the disability management team.

C. Career Opportunities

Graduates of a Disability Management program will typically work as Disability Managers, Return to Work Facilitators, and Vocational Consultants.

D. Learning Principles for Program Development and Delivery

Learning activities in courses will reflect the disability management philosophy and be integrated through the program with a case-oriented approach to problem-solving. Assessment of learning will include a variety of evaluative approaches and activities to stimulate critical discourse which combines practical situations analyzed against learned theories, concepts and frameworks. Learning activities will foster personal growth through critical reflection of student’s attitudes and decision making patterns.

II. Regulations

Students registered in the courses of the Disability Management Certificate Program (CDM) are bound by the University and Faculty regulations in the same manner as all Dalhousie students. The University and Faculty of Health Professions (FHP) regulations are found in the University Regulations section of the Dalhousie University Calendar. Academic regulations are found in the Academic Regulations section of the Calendar. It is the responsibility of each CDM student to become familiar with both the University and FHP regulations.

Please note that the “Acceptable Use Policy” found in the University Regulations section of the Dalhousie Calendar. Because of the distance learning component of this Program, students should pay particular attention to regulations designed to respect the rights of other computer users.

A. Course Grades

The minimum passing grade for all of the CDM courses is 50%. A course may be repeated only once, with a minimum of two repeated courses permitted. A student who fails the same course twice will not be awarded the Certificate.

B. Appeals

On occasion, conflict or disagreement on final grades or evaluative procedures may arise. All students are expected to familiarize themselves with the processes available to them for academic appeals. Timeliness is of the essence for presentation and consideration of all appeals and, in all instances, the first level of appeal will be at the informal level.

In formal appeals, a student must follow the regulations as stated in the University Calendar and such appeals will only be considered after failure to resolve the issue at the informal level has occurred. Students who do not follow these procedures will automatically forfeit their right to further consideration of their appeal and the original decision will remain in effect.

In all instances, the first level of appeal will be at the informal level.

C. Career Opportunities

Graduates of a Disability Management program will typically work as Disability Managers, Return to Work Facilitators, and Vocational Consultants.

D. Learning Principles for Program Development and Delivery

Learning activities in courses will reflect the disability management philosophy and be integrated throughout the program with a case-oriented approach to problem-solving. Assessment of learning will include a variety of evaluative approaches and activities to stimulate critical discourse which combines practical situations analyzed against learned theories, concepts and frameworks. Learning activities will foster personal growth through critical reflection of student’s attitudes and decision making patterns.

II. Regulations

Students registered in the courses of the Disability Management Certificate Program (CDM) are bound by the University and Faculty regulations in the same manner as all Dalhousie students. The University and Faculty of Health Professions (FHP) regulations are found in the University Regulations section of the Dalhousie University Calendar. Academic regulations are found in the Academic Regulations section of the Calendar. It is the responsibility of each CDM student to become familiar with both the University and FHP regulations.

Please note that the “Acceptable Use Policy” found in the University Regulations section of the Dalhousie Calendar. Because of the distance learning component of this Program, students should pay particular attention to regulations designed to respect the rights of other computer users.

A. Course Grades

The minimum passing grade for all of the CDM courses is 50%. A course may be repeated only once, with a minimum of two repeated courses permitted. A student who fails the same course twice will not be awarded the Certificate.

B. Appeals

On occasion, conflict or disagreement on final grades or evaluative procedures may arise. All students are expected to familiarize themselves with the processes available to them for academic appeals. Timeliness is of the essence for presentation and consideration of all appeals and, in all instances, the first level of appeal will be at the informal level.

In formal appeals, a student must follow the regulations as stated in the University Calendar and such appeals will only be considered after failure to resolve the issue at the informal level has occurred. Students who do not follow these procedures will automatically forfeit their right to further consideration of their appeal and the original decision will remain in effect.

In all instances, the first level of appeal will be at the informal level.

C. Career Opportunities

Graduates of a Disability Management program will typically work as Disability Managers, Return to Work Facilitators, and Vocational Consultants.

D. Learning Principles for Program Development and Delivery

Learning activities in courses will reflect the disability management philosophy and be integrated throughout the program with a case-oriented approach to problem-solving. Assessment of learning will include a variety of evaluative approaches and activities to stimulate critical discourse which combines practical situations analyzed against learned theories, concepts and frameworks. Learning activities will foster personal growth through critical reflection of student’s attitudes and decision making patterns.

II. Regulations

Students registered in the courses of the Disability Management Certificate Program (CDM) are bound by the University and Faculty regulations in the same manner as all Dalhousie students. The University and Faculty of Health Professions (FHP) regulations are found in the University Regulations section of the Dalhousie University Calendar. Academic regulations are found in the Academic Regulations section of the Calendar. It is the responsibility of each CDM student to become familiar with both the University and FHP regulations.

Please note that the “Acceptable Use Policy” found in the University Regulations section of the Dalhousie Calendar. Because of the distance learning component of this Program, students should pay particular attention to regulations designed to respect the rights of other computer users.

A. Course Grades

The minimum passing grade for all of the CDM courses is 50%. A course may be repeated only once, with a minimum of two repeated courses permitted. A student who fails the same course twice will not be awarded the Certificate.

B. Appeals

On occasion, conflict or disagreement on final grades or evaluative procedures may arise. All students are expected to familiarize themselves with the processes available to them for academic appeals. Timeliness is of the essence for presentation and consideration of all appeals and, in all instances, the first level of appeal will be at the informal level.

In formal appeals, a student must follow the regulations as stated in the University Calendar and such appeals will only be considered after failure to resolve the issue at the informal level has occurred. Students who do not follow these procedures will automatically forfeit their right to further consideration of their appeal and the original decision will remain in effect.

In all instances, the first level of appeal will be at the informal level.

C. Career Opportunities

Graduates of a Disability Management program will typically work as Disability Managers, Return to Work Facilitators, and Vocational Consultants.

D. Learning Principles for Program Development and Delivery

Learning activities in courses will reflect the disability management philosophy and be integrated throughout the program with a case-oriented approach to problem-solving. Assessment of learning will include a variety of evaluative approaches and activities to stimulate critical discourse which combines practical situations analyzed against learned theories, concepts and frameworks. Learning activities will foster personal growth through critical reflection of student’s attitudes and decision making patterns.

II. Regulations

Students registered in the courses of the Disability Management Certificate Program (CDM) are bound by the University and Faculty regulations in the same manner as all Dalhousie students. The University and Faculty of Health Professions (FHP) regulations are found in the University Regulations section of the Dalhousie University Calendar. Academic regulations are found in the Academic Regulations section of the Calendar. It is the responsibility of each CDM student to become familiar with both the University and FHP regulations.

Please note that the “Acceptable Use Policy” found in the University Regulations section of the Dalhousie Calendar. Because of the distance learning component of this Program, students should pay particular attention to regulations designed to respect the rights of other computer users.
the Request for Certificate Form to the Disability Management office in order to be considered and to receive the Certificate. This form is available on the CDM website: http://www.dal.ca/dmcert

IV. Course Descriptions

DISM 3010.03: Introduction to Occupation and Disability Management.
This course asks the following questions in seeking to understand the meaning and importance of occupation to individuals: What is occupation? What is the meaning of occupation? What is the meaning of work injury and loss of occupation? It also explores: What is disability management? What are some of the professional and ethical issues, as well as the philosophy, roles, conceptual framework for program? What are levels of disability management in organizational systems, injury prevention, and on-site management?
FORMA T: Distance Education
CROSS-LISTING: KINE 3010.03

DISM 4010.03: Return to Work Planning and Communication.
This course will consider processes including factors that create resistance among workers. Introduction to return to work planning and communication processes in understanding resistance and compliance/motivation in workers.
FORMA T: Distance Education

DISM 4040.03: Strategies for Alternative Work and Prevention.
In situations where return to a worker’s former occupation is impossible, learners will identify strategies to assist the client. Such strategies include dealing with issues of job loss, vocational rehabilitation and employment for persons with disabilities. Students will look at prevention strategies in dealing with job loss, vocational rehabilitation, employment for persons with disabilities, meaningful occupation, case closure, and prevention strategies within systems, structures and organizations.
FORMA T: Distance education

DISM 4050.03: Psycho-social Issues in Disability Management.
Many complex psycho-social issues involve the injured worker’s family, community and employer dynamics. Topics studied in this course include: family, community and unemployed persons, psycho-social dynamics, employer dynamics employer/employee relationships, societal trends, dependence and disability categorization, and medical authorization.
FORMA T: Distance education
The program is conducted through the Internet and Web-based conferencing with a learning platform called BbLearn. BbLearn is a distance education course management system. It provides a learning environment where students direct their learning. BbLearn consists of a suite of tools which provide mechanisms for interactive exercises, such as group discussions, presentations, and information sharing.

NOTE: Courses offered through the online format are assessed per course Distance Education Fee (DEF) in addition to the course-based tuition.

A. Application Procedure

Applicants must meet the Dalhousie University undergraduate admission requirements to warrant consideration into this program. Applicants require university preparation (you may not apply from high school). In addition to transcripts, students are required to submit a current resume and at least one letter of reference with their application to the Diploma program.

Applications should be submitted as early as possible, and not later than July 1 for September admission, November 15th for January admission and March 15 for May admission.

Students may be considered for advanced placement if they have completed courses equivalent to the required or elective courses. Application for advanced placement must be made in writing after an applicant has been accepted to the program.

Further information on the Diploma in Health Services Administration program may be obtained from: School of Health Administration, Dalhousie University, 5161 George Street, Suite 700, PO Box 1500, Halifax, NS B3H 4R2, (902) 494-7607. Application forms are available online at www.dal.ca/healthadmin/apply.html.

B. Curriculum

The one-year program features both an academic and outcome-oriented curriculum. Students accepted into the DHSA program take the following half-credit courses:

**Fall term**
- HESA 4000.03: Canadian Healthcare Delivery System
- HESA 4002.03: Health Human Resource Management
- HESA 4003.03: Healthcare Planning
- HLTH 4040.03: Health Law for Non-Lawyers

**Winter term**
- HESA 4004.03: Healthcare Financial Management
- HESA 4005.03: Healthcare Financial Management
- HESA 4006.03: Healthcare Financial Management
- HESA 4007.03: Healthcare Financial Management

**Summer term**
- HESA 4008.03: Healthcare Financial Management
- HESA 4009.03: Healthcare Financial Management

**CROSS-LISTING: CANA 4300.00**

III. Course Descriptions

HESA 4000.03: Canadian Healthcare Delivery System

The course is designed to provide an overview of healthcare in Canada, and more specifically in Nova Scotia, where the health reform process will be addressed. Annel specifically at supervisors, middle management, and administrators, the existing trends in healthcare from a national and provincial perspective will be reviewed. The goal of this course is to provide the student with a snapshot view of the existing healthcare system, its past development, and future direction.

**CROSS-LISTING: CANA 4300.00**

HESA 4001.03: Management Roles and Competencies

This course seeks to help students to examine what managers do to add value to their organizations. As a starting point we will briefly explore the evolution of management theories, comparing the founding theories with more recent literature. We will also examine the role of managers in public organizations such as hospitals. Finally, we will examine specific skills and duties of healthcare managers including: leadership, power, motivation, decision making, communication, teamwork, conflict resolution, organizational change, and others. Learning is facilitated through a mix of individual study and group discussions, and direct feedback from the instructor.
HESA 4002.03: Health Human Resource Management. This course will provide the student with a working knowledge of the day-to-day operational management of human resources. The course will focus on the responsibilities of a manager to mentor, lead and manage the organization’s human resources. The interaction and interdependencies between the manager and the human resource department will be examined. Topics include labor management relations; human rights and labor related legislation; recruitment and selection; performance development and management; professional development and training; compensation related issues; collective bargaining and dealing with special employment related issues. Approved with Canadian Studies. PREREQUISITE: HESA 4000.03 CROSS-LISTING: HESA 4002.03

HESA 4003.03: Quality Management. This course will provide an introduction to the concept of quality improvement. Students will be exposed to the various methods to measure and assess quality in healthcare and be provided exposure with tools and techniques utilized in practice. A focus on safety and risk, patient satisfaction, team leadership as well as accreditation will be undertaken to ensure students gain practical understanding of the drivers of quality in Canadian healthcare. Approved with Canadian Studies. PREREQUISITE: HESA 4000.03 CROSS-LISTING: HESA 4020.03

HESA 4004.03: Healthcare Planning. This course will use lectures, readings and case discussions to explore issues and methods related to healthcare planning and evaluation. Emphasis will be placed on learning how to apply theory to practice at the system, organization, and service levels.

HESA 4005.03: Healthcare Financial Management. This course will introduce the student to financial management concepts. The key concepts of financial resource management will be explored with particular emphasis on implementation in the healthcare sector. Introduction of the basic components will enable the student to understand the concepts within the larger framework of strategic and organizational resource planning and utilization. Topics covered include preparing, managing, and evaluating department budgets, payment systems, and fiscal accountability.

HESA 4100.03: Management Process and Human Resource Issues in EHS. The course is designed to develop skills in the eight core management processes required to effectively manage an EHS operation. The core management skills taught in this course include: Interpersonal Communications and Coaching, Building Effective Teams, Monitoring and Managing Performance, Project Management, Leading Others, productivity Improvement, Influencing and Negotiating with Others, and Managing Innovation and Change. The overall aim of this course is to provide EHS practitioners with the skills necessary to manage effectively in their own work environment, and introduce EHS practitioners to innovations in EHS systems design and management practices. PREREQUISITE: HESA 4000.03 CROSS-LISTING: HESA 4005.03

HESA 4020.03: Quality Improvement in EHS. The objectives of this course are to (1) lead EHS managers through a step-by-step process to design, plan, implement, monitor and evaluate a continuous quality improvement initiative, (2) link continuous quality improvement principles to the concepts and practices of Six Sigma Performance Systems (6SPS), (3) apply the principles, practices, and tools of continuous quality improvement to an EHS operation, and (4) create a team based continuous quality improvement environment. Participants will be introduced to and will apply the concepts of healthcare improvement teams throughout the course. PREREQUISITE: HESA 4000.03 CROSS-LISTING: HESA 4003.03

HESA 4030.03: EHS System Design. The advent of the high performance EHS system makes it evident that it is possible to “do more with less”, however, that possibility requires sensible design tempered by the political realities of the services area. It also requires the use of CQI practices to modify the design and ever vigilant system state management to maintain high performance. This course will consider first the structure issues, both external and internal, that bear upon EHS system design. Then the course will consider the different designs originated from organizational theory. In the second half of the course the various system components will be presented. Finally, the course will consider disaster management of EHS systems. The objectives of this course are: (1) provide managers and management-bound students a broad perspective of the process of providing EHS services, (2) identify the scope of factors that influence, create and alter the design of EHS systems, (3) provide a foundation for system evaluation, and (4) challenge students to anticipate the factors that will affect system design when disaster strikes.

HESA 4040.03: Principles of Community-Based EHS. Emergency Health Service (EHS) systems face challenging environments. However, strategies can be developed that go beyond merely reacting to what occurs in the environment. This course presents public relations planning so that a disaster or even a scandal can be turned into an opportunity. In addition, the course offers a basic understanding of marketing strategies that can help offset market pressures and demands. The objectives of this course are: (1) appreciate how marketing strategies vary when designed for the public good or a public service; (2) develop a marketing plan specific to the student’s emergency health service system; (3) develop and evaluate an emergency health services public relations plan; and (4) facilitate a collaborative activity between the student’s emergency health organization and some of its stakeholders.

HESA 4200.03: Epidemiology for Managers. This course is a general, introductory course in the principles of epidemiology. Discussions will concentrate on the occurrence of disease and injuries in human populations, examine methods of determining the causes of illness and death, and analyze conclusions which have been reached through the application of epidemiological studies. PREREQUISITE: HESA 4000.03

HESA 4400.03: Introduction to Healthcare Economics. This course is an introduction to economic issues in the Canadian Health Care System. The purpose of this course is to provide students with economic tools with which to examine issues affecting the Canadian health system. Specific topics to be examined include: the supply of, and demand for, healthcare; investment appraisal; healthcare systems and markets; health insurance schemes;rationing healthcare services; human resource planning; human resource management; and, outcome measurement and evaluation.
Health and Human Performance

School of Health and Human Performance

Location: 6270 South Street
PO Box 1000
Halifax, NS B3H 4R2
Telephone: (902) 494-2152
Fax: (902) 494-5120
Website: http://www.hahp.healthprofessions.dal.ca

Dean
Webster, W.G., PhD

Director
McCann, F., BRes (Dalhousie), MA (Western Michigan), PhD (Southern Illinois University)

Assistant Professors
Westwood, D. A., BSc, MA, PhD (Waterloo)
Robinson, L. M., BSc Honours 1st class (UVic), MA, PhD (Simon Fraser)

Associate Professors
Singleton, J. F., BA (Waterloo), MS (Penn State), PhD (Maryland)
McGinn, F., BRec (Dalhousie), MA (Western Michigan), PhD (Southern Illinois University)

Professor Emeritus
McGinn, F., BRec (Dalhousie), MA (Western Michigan), PhD (Southern Illinois University)

Purpose of the Policy
This policy is intended to create opportunities for the admission of under-represented African Canadians, Aboriginal peoples, and persons with disabilities, in the School of Health and Human Performance.

Eligibility
Persons eligible to be considered under this policy must self-identify as African Canadian, Aboriginal, or a person with a disability. Although the School of Health and Human Performance is committed to supporting eligible students from across Canada, preference will be given to those who are residents of Atlantic Canada or who have a parent residing in Atlantic Canada at the time of application.

Consideration for admission under this policy is optional. Applicants wishing to be considered under this policy must identify on the undergraduate application form.

Requirements
To be considered for admission under this policy, the following criteria must be met:

1. Those applying directly from high school must have attained a minimum grade of 65% in each of the prerequisites listed for the program of choice. Transfer students (i.e., individuals having completed post secondary courses) must have achieved a minimum overall GPA of 2.3 (C+).
2. The applicant would otherwise not have been admitted through the regular admission process.
3. The applicant must have a parent residing in Atlantic Canada at the time of application.

Support Services
Once admitted to the School, students wishing to access the following support services must identify their need to the Student Services Administrator, or the individual's school/college to determine the specific guidelines and expectations regarding the required portfolio.

A. Purposes of the School
The School’s mission is to develop professionals and scholars who can generate, disseminate and apply knowledge to advance health and human performance. We do this by offering undergraduate and graduate programs as well as by conducting research in health promotion, kinesiology and recreation/leisure studies.

B. Limited Enrolment
All programs offered by the School of Health and Human Performance have enrolment limits.

C. Interprofessional Health Education
Students are required to maintain enrolment in IPHE 4900.00 (see calendar section on Health Professions, Interprofessional Health Education) for the duration of their studies.

D. Affirmative Action Admission Policy

I. Introduction

Patricia J., BPE (UNB), MS Ed (Ontario)
Torrey, L., BSc (Univ. of British Columbia), MSc (Dalhousie)
Willigress, S., BSc, MSc (Calgary)

1. School of Health and Human Performance:

a) The Student Services Administrator will meet regularly with students to discuss, disseminate and apply knowledge to advance health and human performance.

b) Faculty members who are members of the designated groups, or who are closely affiliated with those groups, will be asked to provide academic mentorship if required.

 McCann, F., BRes (Dalhousie), MA (Western Michigan), PhD (Southern Illinois University)

386 Health and Human Performance
d) Faculty whose office is in a building that might be inaccessible to students with a physical disability will arrange an alternative, more accessible, space for meeting with those students.

2. Dalhousie University offers a variety of services to students

For further information go to www.dal.ca/campus_life/student_services.html

II. School of Health and Human Performance Regulations

1. All students must observe the University and Academic Regulations described in this Calendar.

2. Attendance

All students must attend the classes of their prescribed course regularly and punctually. When the work of a student becomes unsatisfactory or attendance is irregular, the student may be required to discontinue the course concerned.

3. Workload

The maximum course load for any fall or winter term is 15 credit hours (five half-credits) and during spring and summer terms, the maximum course load for each is 6 credit hours. Students wishing to exceed the maximum course load must receive permission from the academic advisor within the School. Permission will not normally be granted to any student in his or her first year of study or to any student who does not have a cumulative GPA of 3.00 or above. Other requests based on extenuating circumstances will be considered.

4. Grade Point Average Requirements

The grade point average system is described in the Academic Regulations.

5. Supplemental Examinations

The School of Health and Human Performance does not offer supplemental examinations in any of its programs.

6. Academic Appeals Procedures

A student wishing to appeal a decision based on School regulations should in the first instance attempt to resolve the issue with the instructor(s) concerned before proceeding as per School Appeal Procedures. See Academic Regulation 24.6.

6.a School Committee on Undergraduate Student Appeals

A School-wide Committee on Undergraduate Student Appeals exists for the purpose of hearing initial student appeals of academic decisions.

The student appellant is responsible for the preparation of all documentation in support of his/her appeal.

The student must submit the appeal to the Chair, Committee on Undergraduate Student Appeals.

The student has the right to appear before the Committee on Undergraduate Student Appeals and he/she should notify the Chair of his/her desire to do so. The student also has the right to be represented by an advocate of his/her choice.

The decision of the Committee on Undergraduate Student Appeals shall be conveyed to the student, in writing, by the Chair, Committee on Undergraduate Student Appeals within three working days after the conclusion of the appeal. If the student’s appeal is being denied, this notification should include information about procedures to appeal to the Committee on Undergraduate Student Appeals of the Faculty of Health Professions (see Academic Regulation 25.6). It should be noted that this appeal is the Faculty Committee on Undergraduate Student Appeals must be presented within 30 days of notification from the School of the appealed academic decision.

7. Student Advisory Programs

Although many courses are compulsory in the School’s programs, considerable latitude exists for the development and extension of individual interests. To help in planning a total personal program each student is assigned to the Student Services Administrator. He/she can help students to select courses, avoid common pitfalls, interpret regulations, and solve various types of problems. Although students are responsible for their own programs and for maintaining high academic standards, they should consult their advisor regularly.

III. Degree Programs

The School offers eight undergraduate degree programs:

A. BSc (Health Promotion)
B. BSc (Health Promotion) with Honours
C. BSc (Kinesiology)
D. BSc (Kinesiology) with Honours
E. BSc (Recreation)**
F. BSc (Recreation)/Bachelor of Management***
G. BSc (Recreation) with Honours*
H. BSc (Recreation) with Honours* Bachelor of Management degree

* Application is made to the Faculty Coordinator by November 15 for HPR, Rec (TR), Rec Mgmt and April 1 for Kinesiology, of the student’s first year; Consult department for further information.

** The BSc (Recreation) is a degree in Therapeutic Recreation.

***This is a five-year combined degree in which the student will graduate with both a Bachelor of Science (BSc) and Bachelor of Management degree.

NOTE 1: Students entering into any of the above degree programs from high school should refer to the Admission Requirements section of this calendar.

NOTE 2: Students who are transferring into any of the above degree programs with previous academic work will formulate a program of study with the Student Services Administrator, based on previous work and area of concentration.

Students transferring into the BSc (Health Promotion), BSc (Recreation) and BSc (Recreation)/Management programs should note that the internship experiences required in the final year of these programs are normally only offered in the fall and winter terms.

A. School of Health and Human Performance Courses

The following courses are required for certain degree programs within the School. Please refer to the Required Courses section of the specific degree program of interest:

- HAHF 1000.03
- HAHF 2000.03
- HAHF 3000.03
- HAHF 3100.03

HAPH Course Descriptions

HAPH 1000.03: Introduction to Health, Health Promotion and Health Professions

This course provides the philosophical and practical scope of the School’s unique perspective on health. It includes an examination of theories, research, politics and practices that have helped to define health, and health promotion as an umbrella for health-related activities. An historical perspective of health and healthcare is offered and current international, national and local issues are considered. Also included is an introduction to the professional streams offered in the School and how they fit into health promotion and the Canadian healthcare system.

FORMAT: Lecture/seminar

HAPH 2000.03: Human Growth and Development

A study of factors influencing human growth and development from birth to maturity and throughout the lifespan, as revealed by observational and experimental studies.

FORMAT: Lecture, 3 hours

RESTRICTION: Restricted to students in the School of Health and Human Performance, and Bachelor of Health Science students. Others by permission of instructor with priority to Health Professions students.

HAPH 3000.03: Community Development

This course examines the nature and process of community development, reviews differing interpretations and approaches to community development, and provides students the opportunity to develop skills to catalyze and engage in the process. The course will investigate current Canadian initiatives and projects that encourage the practice of community development, and provide the opportunity to witness and become involved in local health-related projects that foster the principles of community development.

FORMAT: Lecture/discussion/tutorial, 3 hours

RESTRICTION: Restricted to students in the School of Health and Human Performance.
HAHP 3100.03: Introduction to Research Methods.
This course provides students with basic knowledge for conducting research in health professions. The content covers ethics associated with research, research design, issues in measurement, sampling, data collection strategies, data analysis and report writing. Students will learn about different approaches to research from the classical scientific model to more subjective interpretive models of inquiry. Testing, as well as written assignments will serve as evaluative techniques.

FORMAT: Lecture/discussion 3 hours
EXCLUSION: NSCE 3010.03
RESTRICTION: Restricted to students in the School of Health and Human Performance, and Bachelor of Health Informatics students.

B. Bachelor of Science (Health Promotion)
The Bachelor of Science (Health Promotion) is a four-year degree program. The goal of health promotion is to educate health promotion professionals in promoting, maintaining and improving the health and well-being of individuals, families and communities. As a profession, Health Promotion is principally devoted to employing health promotion processes and to fostering healthy behaviors.

The responsibilities of health promoters include: assessing health promotion needs; planning, conducting and evaluating health promotion programs; coordinating health promotion activities and resources; promoting health promotion throughout the community; and professional development.

The BSc (Health Promotion) program guides students in attaining: (1) knowledge, attitudes and practices conducive to a healthy lifestyle; (2) professional preparation for advanced study and research in health promotion or health-related fields; (3) academic preparation for a career in community health promotion; and professional development.

Program of Study

NOTE: On admission into the BSc (Health Promotion) program, all students will be issued a Program of Studies Form. It is the responsibility of the student to ensure that all of the requirements for the degree as outlined on the form are completed for graduation.

Required Courses - BSc (Health Promotion)

Stream Requirements

Common Year One

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAHP 1000.03</td>
<td>Basic Science</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 1105.03</td>
<td>Introductory Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>ANAT 1020.03</td>
<td>Introduction to Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>CSSC 1200.03</td>
<td>Introduction to Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>STATS 1060.03</td>
<td>Introduction to Statistics</td>
<td>3</td>
</tr>
<tr>
<td>PHYL 1010.06</td>
<td>Environmental Health</td>
<td>6</td>
</tr>
<tr>
<td>SOSA 1000.06 or 1010.06 or 1100.06 or 1200.06</td>
<td>Open Elective</td>
<td>6</td>
</tr>
</tbody>
</table>

Open Elective** 3

Community Health Promotion Stream

Year Two

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAHP 2000.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 2110.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 2120.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 2360.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
</tbody>
</table>

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPRO 2230.03, HPRO 4422.03, HPRO 4560.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>PSYO 1011 or 1021 and PSYO 1012 or 1022</td>
<td>Psychology</td>
<td>6</td>
</tr>
<tr>
<td>Language and Humanities Elective*</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Writing Requirement**** | 6 |

Year Three

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAHP 3000.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 3100.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 3307.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 3325.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
</tbody>
</table>

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPRO 3330.03, HPRO 3340.03, HPRO 3351.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 4450.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
</tbody>
</table>

Open Elective** | 3 |

Health Related Elective*** | 3 |

Year Four

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPRO 2255.03, HPRO 4422.03, HPRO 4560.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
</tbody>
</table>

One of***:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPRO 3325.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPRO 4495.15</td>
<td>Community Health Promotion</td>
<td>15</td>
</tr>
</tbody>
</table>

Research and Policy Stream

Year Two

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPRO 2000.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 2110.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 2120.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 2361.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>PSYO 1011 or 1021 and PSYO 1012 or 1022</td>
<td>Psychology</td>
<td>6</td>
</tr>
<tr>
<td>Language and Humanities Elective*</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Writing Requirement**** | 3 |

Year Three

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPRO 3000.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 3100.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 3307.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>HPRO 4410.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
</tbody>
</table>

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPRO 3360.03, HPRO 3370.03</td>
<td>Community Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>Open Elective**</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Health Related Elective***</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

Year Four

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Related Elective***</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Open Elective**</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>HPRO 4495.15</td>
<td>Community Health Promotion</td>
<td>15</td>
</tr>
</tbody>
</table>

* Language/Humanities Elective - see list under Degree Requirements Section in the Academic Calendar.
** Open Electives can be chosen from any available course at Dalhousie.
*** See list of writing requirement courses under Degree Requirements Section in the Academic Calendar.
**** * See list of writing requirement courses under Degree Requirements Section in the Academic Calendar.
***** See list of writing requirement courses under Degree Requirements Section in the Academic Calendar.

At graduation, valid Standard First Aid and CPR Level C Certification are required. Students must submit copies of valid certification to the Student Services Administrator before the end of their final term.

C. Bachelor of Science (Health Promotion) with Honours

Students wishing to be considered for entrance into the Honours Program must meet the minimum requirements listed below. Acceptance to the program after meeting these requirements will depend on a faculty member being willing to supervise the honours thesis.

1. Completed a minimum 75 credit hours towards his/her undergraduate degree.
2. Obtained a GPA of 3.5 based on the previous 45 credit hours of work.
3. Completed HAHP 3101 with a minimum grade of B.
4. Completed a 3000 level or higher HPRO course most related to the area of research.
5. Completed the Financial, Technical, Equipment and Space Support Form indicating the financial needs of the thesis can be met.

Application is made by November 15th of the student's third year.

NOTE: Students accepted into the Honours program must complete HPRO 4101.03 and HPRO 4102.03.

The Honours Program is part of the 120 credit hours required for the Bachelor of Science (Health Promotion) degree. These six credit hours may be attributed as open electives or as health-related electives.

Students accepted into the Honours program are required to attend an Honours seminar weekly for the first two months, and then monthly.

1 A student who has completed 87 credit hours may apply to the School of Health and Human Performance Undergraduate Student Appeals Committee for a waiver of the requirement. Successful appeal will depend upon the merits of the argument.
Form: Lecture 3 hours

HPR0 2255.03: Drugs and Drug Education.

This course introduces students to the basic concepts of epidemiology - the study of the causes and distribution of disease in human populations. Emphasis will be on disease causation, morbidity and mortality through studying selected chronic conditions. This course examines social determinants of health and their relationship to chronic conditions. Students are introduced to the concept of safety, the causes and effects of injuries, and strategies for reducing same through safety education, engineering and policy. Specific study of injuries, their causes, and preventive measures and programs is preceded by a review of definitions of health, health promotion/education modules and policies. The latter part of the course focuses on community orientations to injury prevention.

FORMAT: Lecture/discussion 3 hours

HPR0 3360.03: Multicultural Health Promotion Research and Policy.

The purpose of this course is to provide students with an opportunity to explore the distinct and integrated influence of research and policy on the health of multicultural populations within the Canadian context. In particular, this course will assist students in developing a critical understanding of the interaction of multicultural health with policies and power. Through engagement with multidisciplinary perspectives, students will examine health research and policy issues pertaining specifically to New Canadians (Immigrants), African Canadians, and Aboriginal peoples.

PREREQUISITE: HPR0/HEED 1195.03, HPR0 2120.03

RESTRICTION: Restricted to School of Health and Human Performance students; others by permission of instructor, with priority to Health Professions students.

HPR0 3361.03: Program Planning.

This course introduces students to basic program planning principles, program planning models, and examples of programs that are pertinent to leisure services and health education promotion. The planning process will include issues such as targeting specific populations, scanning for needs and assets, partnering, arranging stakeholder relationships, and evaluation.

FORMAT: Lecture/discussion 3 hours

HPR0 3375.03: Mental Health Promotion.

This course is designed to encourage those working and studying in the areas of health promotion to better understand the connection between health promotion theory and research, policy and community practice. This course will also provide students with an opportunity to explore and critically analyze the principal methods and theoretical approaches in the evolution and assessment of evidence for effectiveness of health promotion programs and interventions.

PREREQUISITE: HPR0/HEED 1195.03

RESTRICTION: Restricted to Health Promotion students. Others by permission of instructor with priority to Health Professions students.

HPR0 2550.03: Interdisciplinary Class in Human Nutrition.

This course focuses on the science of nutrition and the role of nutrition in health. We study how the body responds to different nutrients including protein, carbohydrate, fat, vitamin, minerals, and water. Current knowledge and controversies regarding the role of diet in disease and optimal health will be explored.

FORMAT: Lecture 3 hours

HPR0 2255.03: Drugs and Drug Education.

International, national and regional issues of prevention, treatment, and legislation of drug use are examined. Recreational, over-the-counter and some prescription drugs will be considered. Some strategies and methods of educating about drugs and drug-related issues will be included.

FORMAT: Lecture 3 hours

RESTRICTION: Restricted to School of Health and Human Performance students. Others by permission of instructor, with priority to Health Professions students.

HPR0 2361.03: Program Planning.

This course reviews the principles of program planning, various program planning models, and examples of programs that are pertinent to leisure services and health education promotion. The planning process will include issues such as targeting specific populations, scanning for needs and assets, partnering, arranging stakeholder relationships, and evaluation.

FORMAT: Lecture/discussion 3 hours

HPR0 2120.03: Health Promotion Policy.

The purpose of the course is to introduce students to the concept of policy and health promotion policy in particular. Students will be exposed to content that demonstrates the policy development process at many levels and the complexity of health promotion policy. Through the use of case studies, students will be asked to critically analyze existing health promotion policies and understand issues related to policy interpretation, application and compliance at national, provincial and local levels.

PREREQUISITE: HPR0/HEED 1195.03

RESTRICTION: Restricted to Health Promotion students. Others by permission of instructor with priority to Health Professions students.

HPR0 2110.03: Health Promotion Theory.

This course is designed to encourage those working and studying in the areas of health promotion to better understand the connection between health promotion theory and research, policy and community practice. This course will also provide students with an opportunity to explore and critically analyze the principal methods and theoretical approaches in the evolution and assessment of evidence for effectiveness of health promotion programs and interventions.

PREREQUISITE: HPR0/HEED 1195.03

RESTRICTION: Restricted to Health Promotion students. Others by permission of instructor with priority to Health Professions students.

HPR0 2110.03: Health Promotion Theory.

This course introduces students to the basic concepts of epidemiology - the study of the causes and distribution of disease in human populations. Emphasis will be on disease causation, morbidity and mortality through studying selected chronic conditions. In addition, this course examines social determinants of health and their relationship to chronic conditions.

FORMAT: Lecture/discussion 3 hours

HPR0 3345.03: Epidemiological Approach to Disease.

This course explores the basic concepts of epidemiology - the study of the causes and distribution of disease in human populations. Emphasis will be on disease causation, morbidity and mortality through studying selected chronic conditions. In addition, this course examines social determinants of health and their relationship to chronic conditions.

FORMAT: Lecture/discussion 3 hours
HPRO 3370.03: International Health Promotion Research and Policy.

The main goal of the course is to introduce students to the ways in which health promotion research questions, methods and ethics, as well as health policies, vary depending upon the specific international context (local and national). A comparative analysis will be undertaken of the disparities in health in well-being between (and within) developed and developing countries while considering the historical development of antigovernmental action. Each year the students will choose from among a variety of key global health issues (e.g. tobacco addiction, alcohol consumption, lessons from world AIDS and nutrition). Focus will be placed on the social determinants of these health issues/problems, and the types and level of health promotion research and policy issues needed to address these health problems within particular geographical contexts/countries. One of the central themes of the course is how societies are organized, and the way in which resources are invested and whose interests the systems serve, affect the health of individuals and populations within the society.

PREREQUISITE: HPRO/HEED 1195.03, HPRO/HEED 2361.03
RESTRICTION: Restricted to Health Promotion students. Others by permission of instructor with priority to Health Professions students.

HPRO 3397.03: Community Health Promotion Strategies.

A broad spectrum of health promotion strategies is available to facilitate health in various community settings and with diverse populations. The course reviews these major strategies and offers students practice in applying them. In addition, the various models and theories of health behaviour change will be examined.

FORMA T: Lecture 3 hours
NOTE: Students may take no more than a total of 6 credit hours of independent research; this includes writing a formal research report in the form of a thesis.

PREREQUISITE: HPRO 3335.03 or HPRO 3345.03
RESTRICTION: Restricted to School of Health and Human Performance students; others by permission of instructor with priority to Health Professions students.

HPRO 4101.03: Advanced Topics in Applied Research Methods in Health Promotion and Policy.

The purpose of this course is to provide students with an opportunity to develop their understanding of research methodologies and apply their knowledge to a specific health promotion topic. Health policies will be discussed and considered relative to specific health behaviours.

FORMA T: Research/tutorial 3 or 6 hours
NOTE: Students may take no more than a total of 6 credit hours of independent research; this includes writing a formal research report in the form of a thesis.

PREREQUISITE: HPRO 3310.03 and HPRO 4101.03 with a grade of B or better in each, and ethical approval by August 1.
RESTRICTION: Restricted to Health Promotion students. Others by permission of instructor with priority to Health Professions students.

HPRO 4102.03: Honours Thesis.

The purpose of the course is to develop research skills by completing a major independent research project and writing a formal research report in the form of a thesis. Up to four of their research, students will demonstrate skills, knowledge and ability in literature research, research design, data collection/analysis and formal academic writing.

FORMA T: Research/tutorial 3 hours
NOTE: Students may take no more than a total of 6 credit hours of independent research; this includes writing a formal research report in the form of a thesis.

PREREQUISITE: HADV 3100.03 and HPRO 4101.03 with a grade of B or better in each, and ethical approval by August 1.
RESTRICTION: Restricted to Health Promotion students. Others by permission of instructor with priority to Health Professions students.

HPRO 4365.03: Health: A Biopsychosocial Approach.

Health is increasingly recognized as multiply determined by the complex interactions of biological, psychological, and social contexts and determinants. Research into these interactions is advancing rapidly. Students in this course are expected to develop an understanding of these processes, be aware of the most recent research and be capable of seeking out new research in the future and applying this knowledge to health problems. Time.

FORMA T: Seminar 3 hours
NOTE: Students may take no more than a total of 6 credit hours of independent research; this includes writing a formal research report in the form of a thesis.

PREREQUISITE: HPRO 3335.03 or HPRO 3345.03
RESTRICTION: Restricted to Health Promotion students. Others by permission of instructor with priority to Health Professions students.

HPRO 4412.03: Environmental Health.

Individual health and well-being is partially determined by the values we hold and the choices we make as individuals. Equally important is the environment that enables us to make those choices that maintain and enhance our health. This course emphasizes the importance of the environment, both physical and social, and how it is implicated in the work of health promoters and other health professionals. The course reviews principles of natural and social ecology, the role of policy in shaping our environment, and research aimed at finding the impact of various environmental conditions on health. Students will explore environmental health issues within the community and propose educational strategies to maintain and enhance health and well-being.

FORMA T: Lecture/discussion
RESTRICTION: Restricted to School of Health and Human Performance students; others by permission of instructor, with priority to Health Professions students.

HPRO 4450.03: Comprehensive School Health Promotion.

This course will provide students with an overview of the components of a comprehensive health promotion program in the public school system from a community health promotion perspective. The school health curriculum, school health services, and the healthy school environment - and how a community health promoter might interact with the school system - will comprise the course content.

FORMA T: Lecture/tutorial 3 hours
NOTE: Students may take no more than a total of 6 credit hours of independent research; this includes writing a formal research report in the form of a thesis.

PREREQUISITE: HPRO 1195.03, HPRO 2110.03, HPRO 2361.03, HPRO 3379.03; at least two of HPRO 2235, HPRO 4412, HPRO 4365, HPRO 3355, HPRO 3345, or HPRO 3353
RESTRICTION: Restricted to Health Promotion students in their final year of study.

HPRO 4495.15: Health Promotion Internship.

This course is an extended professional development internship during the final year of study. It requires completion of a 14-week, 40 hours per week internship in a health promotion agency. The internship involves an in-depth agency analysis and the completion of a special service project for the agency, as well as several other academic projects. Details of the goals and specific procedures for the internship are contained in the current Internship Handbook.

FORMA T: Internship – 14 weeks in the Fall term (September-December), or Winter term (January-April) or Spring term (April to mid-May) available only with permission of the Internship Coordinator.
PREREQUISITE: Completion of all other program requirements and approval of the Student Services Administrator. A Standard First Aid and Level 1 CPR Certification.
RESTRICTION: Restricted to Bachelor of Science (Health Promotion) students in their final term.

HPRO 4700.06/4701.03/4702.03: Senior Seminar.

This course is intended for small groups of students. It is designed to allow students to focus on a particular issue or set of related issues, that are not part of the regular curriculum. Part of this course could entail a practicum experience. The course will only be offered if a faculty member is available to supervise the work.
FORMA T: Seminar
RESTRICTION: Restricted to Health Promotion students in their final year of study.

HPRO 4800.06/4801.03/4802.03: Independent Study.

The Independent Study allows students to develop an area of specialization with library, laboratory or field research, under the guidance of an appropriate faculty member.
NOTE: Students may take no more than a total of 6 credit hours of independent research.
FORMA T: Research/tutorial 3 or 6 hours
NOTE: Students may take no more than a total of 6 credit hours of independent research.
PREREQUISITE: Fourth year standing; a GPA of at least 3.00; a “B” grade in an earlier class in the area of study (where appropriate); consent of advisor; consent of tutor. Intention to register for an Independent Study should be confirmed with the undergraduate secretary by April 1st of the preceding academic year.
RESTRICTION: Restricted to School of Health and Human Performance students; others by permission of instructor, with priority to Health Professions students.

390 Health Promotion
C. Bachelor of Science (Kinesiology)

Program Description

Kinesiology is the study of the structure and function of the human body within the context of human movement and with a focus on the maintenance and enhancement of health and well-being. Students may elect to concentrate in one of these three professional areas: ergonomics, fitness and lifestyle, or coaching science*. or follow a more general stream with a focus on research or other professional areas in which human movement and health are central. The School offers a four-year BSc (Kinesiology) degree as well as a four-year honours degree in Kinesiology (see Section E below).

* See stream requirements under Program of Study below.

The goals of these degrees are to provide students with:

1. A broad background in various subdisciplines of Kinesiology, including anatomy, physiology, neuropsychology, biomechanics, movement control and psychology of performance;
2. An exposure to several science disciplines which are prerequisite and/or complementary to the kinesiology subdisciplines (e.g., biology, physics, psychology, mathematics);
3. An introduction to the discipline of health promotion and an appreciation of the role kinesiology plays in health and well-being concerns of the individual;
4. An exposure to some aspects of the humanities and social sciences, as a means of enhancing the liberal education of the student and addressing social concerns in relation to health promotion;
5. A solid foundation in research methodology and statistics, including opportunities for independent research if the student should so choose;
6. An understanding of the principles and tools necessary to evaluate human movement from a variety of perspectives and in a variety of settings, as well as hands-on experience in several evaluative procedures;
7. Professional preparation in the areas of fitness and lifestyle; ergonomics; or coaching sciences;
8. Experiences in active and problem-based learning;
9. The necessary background to enable the student to pursue graduate work in kinesiology or related fields.

Program of Study

On admission into the BSc (Kinesiology) program, all students will be issued a Program of Studies Form. It is the responsibility of the student to ensure that all of the following requirements for the degree as outlined on the form are completed for graduation.

Required Courses - BSc (Kinesiology)

- BIOL 1011.03: Principles of General Biology II
- BIOL 1010.03: Principles of General Biology I

Engineering, Science, or Medicine.

** Science electives must be from the Faculties of Computer Science, Engineering, Science, or Medicine.

Kinesiology Electives *18

Open Electives**21

Six credit hours of the total 24 credit hours must be 2000 level or above.

** Open electives must include: (1) six credit hours from Humanities or Sociology; (2) at least nine credit hours must be at the 2000 level or above.

Students considering the Honours degree are required to take six credit hours of Math, and are required to have 30 credit hours of science electives, with 12 credit hours of those Science electives at the 2000 level or above by the end of their final year. For further information see section B. Bachelor of Science (Kinesiology) with Honours (p. 340).

Stream Requirements

Students interested in focusing on Ergonomics; Fitness and Lifestyle; or Coaching Science at an advanced level will be guided into one of these specialty streams. A maximum of 12 students/year/stream will be selected, primarily on the basis of GPA. Students wishing to complete a stream should consult the student advisor.

The following is a list of required courses for each stream. Any courses over the 18 credit hours of required KINE electives can be counted as open electives.

Ergonomics Stream

- KINE 3414.03: Physical Fitness Assessment and Program Design
- KINE 3479.03: Principles of Ergonomics
- KINE 3482.03: Care & Prevention of Injuries
- KINE 4466.03: Advanced Biomechanics
- KINE 4577.03: Cognitive Ergonomics
- KINE 4578.03: Physical Ergonomics
- KINE 4580.03: Clinical and Occupational Kinesiology

Fitness and Lifestyle Stream

- KINE 3413.03: Physical Fitness Assessment and Program Design
- KINE 3419.03: Application of Physiological Principles to Human Performance
- KINE 3430.03: Psychology of Sport
- KINE 4412.03: Counselling for Health and Well-being
- CHEM 1011.03: General Chemistry Part I
- CHEM 1012.03: General Chemistry Part II
- MATH 1000.03: Differential & Integral Calculus
- MATH 1010.03: Differential & Integral Calculus
- PSYO 1011 or 1021.03: Introduction to Psychology and Neuroscience I
- PSYO 1012 or 1022.03: Introduction to Psychology and Neuroscience II
- PSYO 1060.03: Principles of General Psychology

D. Bachelor of Science (Kinesiology) with Honours

Students who wish to complete the Honours Program may apply at the end of their third year of study. Acceptance into the Honours program is contingent upon the willingness of a faculty member to serve as the honours thesis advisor. To be considered for admission into the program, students must have fulfilled the following requirements:

1. Completed MATH/STAT 1060.
2. Completed a minimum of 24 credit hours of science electives, including a math course in addition to the required MATH/STAT 1060. The other math
Students accepted into the Honours program must complete KINE 5. Completed HAHP 3100.03 (Research Methods) with a minimum grade of B. Obtained an overall GPA of 3.5 on the previous 60 credit hours of work; completed an upper level Kinesiology course (at the 3000 level or above) in introductory course will provide students with the fundamental knowledge of how their role in society. Debate and critical analysis will figure prominently in the study of physical activity and the implementation of physical activity programs in public and professional contexts. This course develops core principles in the sciences. Problem Based Learning (PBL) will be used as the course methods of measurement and evaluation and the technology involved in each of these sub-disciplines are, students will gain an understanding of the and for them to learn about the sub-disciplines and content areas that contribute to the general body of knowledge in Kinesiology. In addition to understanding what these sub-disciplines are, students will gain an understanding of the interrelationships among these sub-disciplines and the types of careers that students can enter. Students will be exposed to discipline content as well as the methods of measurement and evaluation and the technology involved in each of the disciplines. Problem Based Learning (PBL) will be used as the course instruction method. Format: Lecture 3 hours, lab 1.5 hours. Restriction: Restricted to Kinesiology students only.

KINE 1106.03: Philosophy and Ethics for Kinesiologists. Physical activity figures prominently in many aspects of society and culture. Kinesiologists are in a unique position to bridge the gap between the scientific study of physical activity and the implementation of physical activity programs in public and professional contexts. This course develops core principles in philosophy and ethics to help the aspiring kinesiologist think about and evaluate their role in society. Debate and critical analysis will figure prominently in the course. Format: Lecture 3 hours, tutorial 1 hour. Restriction: Restricted to Kinesiology students only.

KINE 1108.03: Psychology and Physical Activity. Physical inactivity is widely recognized as a lifestyle associated with considerable health risk. The challenge of increasing the level of physical activity in the population requires an in-depth understanding of the individual and environmental factors that influence or promote or inhibit regular activity. Accordingly, this introductory course will provide students with the fundamental knowledge of how psychological concepts are related to physical activity participation and health. The main focus is to provide (a) a basic understanding of various social- psychological concepts and principles involved in health and exercise psychology, and (b) to see how these concepts and principles might be translated into promoting health and wellness via physical activity participation. Core concepts include the basics of psychology research, theories, motivation, adherence, and behavior modification.

Format: Lecture 3 hours, lab 1.5 hours. Restriction: Priority given to Kinesiology students.

KINE 2250.03: Interdisciplinary Class in Human Nutrition. This course focuses on the science of nutrition and the role of nutrition in health. We study how the body responds to different nutrients including proteins, carbohydrates, fat, vitamins, minerals, and water. Current knowledge and controversies regarding the role of diet in disease and optimal health will be explored.

Format: Lecture 3 hours. Cross-listing: HPRO 2250.03

KINE 2310.03: Physiology of Exercise. This is an introductory course for students with a basic knowledge of anatomy and physiology. It concentrates on the respiratory, cardiovascular and neuromuscular systems in terms of their involvement during exercise, their adaptation to different types of training and how they limit performance during exercise in different environmental conditions.

Format: Lecture 3 hours, lab 1.5 hours. Prerequisite: ANAT 1020.03 or ANAT 1010.03, PHYH 1010.06 or PHYH 1000.06 or PHYH 2010.06. Restriction: Restricted to Kinesiology students.

KINE 2320.03: Kinesiology Anatomy. Neuroanatomical and musculoskeletal structures are presented and discussed in order to establish the understandings necessary for an in-depth analysis of human movement.

Format: Lecture 3 hours, lab 1 hour. Prerequisite: ANAT 1020.03 or ANAT 1010.03 and PHYH 1010.06 or PHYH 1000.06 or PHYH 2010.06. Restriction: Restricted to Kinesiology students

KINE 2430.03: Motor Control and Learning. This course deals with the process of generating movements to achieve a desired goal. It involves systematic changes in perception of the environment, decisions about what movements to make, as well as changes in how those movements are carried out. This course covers what is known about these processes as well as how this information can be applied.

Format: Lecture 3 hours, lab 1.5 hours. Restriction: Restricted to Kinesiology students.

KINE 2465.03: Introductory Biomechanics. The purpose of this course is to introduce students to the areas of biomechanics and human movement analysis. Students will be exposed to the concepts of kinematic and kinetic analysis of motion as well as muscle forces and moments of force as applied to the human body.

Format: Lecture 3 hours, lab 1.5 hours. Prerequisite: PHYH 1300.06 or PHYH 1310.05. Exclusion: PHYH 2460.03. Restriction: Restricted to Kinesiology students.

KINE 3010.03: Introduction to Disability Management. Introduction to Disability Management is designed to provide students with a comprehensive understanding of an occupational injury, its impact and recovery processes. In particular, the course will expose students to levels of disability management in organizational systems, injury prevention and on-site management.

Note: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. Cross-listing: DDIS 3010.03

KINE 3200.03: Sociocultural Issues in Physical Activity. This course will provide students with an introduction to social theory, culture, and social psychology as applied to physical activity and sport. While recognizing that physical activity does not take place in a social vacuum, and social context often influences how physical activity and sport are experienced, this
course explores participation in and perceptions of physical activity and sport according to gender, social class, age, sexual orientation, ethnic group and nationality. The meaning of physical activity and sport in society, the role of Canadian public policy in promoting and facilitating participation in physical activity, and sport as an agent for social change will also be explored.

**KINE 3320.03: Anatomical Basis of Human Movement.**
The purpose of this course is to integrate information from movement sciences in order to analyze a broad spectrum of human activities. From simple static contractions to complex patterns of both fine motor and gross motor activities. Understanding the role of sport and fitness movements will be examined using an integrated digital video-channels EMG approach.

**FORMAT:** Lecture 3 hours

**PREREQUISITE:** ANAT 1020.03 or ANAT 1010.03, PHYS 1010.06 or PHYS 1000.06 or PHYS 2030.06, KINE 1104.03, KINE 2310.03, KINE 2320.03, KINE 2450.03, KINE 2460.03

**RESTRICTION:** Restricted to Kinesiology students. Others by permission of instructor, with priority to Health Professions students.

**KINE 3384.03: Physical Activity for Persons with Disabilities.**
The course will cover basic exercise and sports techniques required to assess physical fitness as well as the knowledge required to design physical activity/exercise programs for healthy populations (children and youth, adults and older adults). Techniques to assess aerobic fitness, body composition, muscular endurance and flexibility will be covered in laboratory sessions.

**FORMAT:** Lecture/lab 3 hours

**PREREQUISITE:** KINE 2320.03

**KINE 3414.03: Exercise Testing and Prescription for Healthy Populations.**
The course will cover basic exercise testing techniques required to assess physical fitness as well as knowledge required to design physical activity/exercise programs for healthy populations (children and youth, adults and older adults). These include: an overview of fitness concepts of motor control and learning; variables that impact on skill acquisition, practice and instruction will be examined. Students will be introduced to the application of these principles to skill acquisition.

**FORMAT:** Lecture 3 hours

**PREREQUISITE:** KINE 2310.03

**RESTRICTION:** Restricted to Kinesiology students. Others by permission of instructor, with priority to Health Professions students.

**KINE 3419.03: Application of Physiological Principles to Human Performance.**
This course will cover basic exercise testing techniques required to assess physical fitness as well as knowledge required to design physical activity/exercise programs for healthy populations (children and youth, adults and older adults). The etiology and effects of the more prevalent disabling conditions form the bases of strategies for teaching, coaching and rehabilitating these affected. Emphasis is placed on the physical components of disability and the adaptation of the environment and equipment to facilitate learning of ADL and sport. A practicum is required.

**FORMAT:** Lecture/practicals 3 hours

**PREREQUISITE:** KINE 2320.03

**KINE 3430.03: Principles of Skill Acquisition.**
This course will provide students with an understanding of the fundamental principles and concepts of effective coaching planning and practice. Students will explore the role of the coach, their knowledge base, and philosophical approaches to coaching and pedagogical. They will learn to develop lesson plans, write objectives, design and administer tests, organize and analyze test results. Students will develop the conceptual skills, mental preparation in sport. It will systematically analyze, investigate and assess psychological skills, attributes and preparation in this area, and their application in other environments. Emphasis will also be placed upon personal experience and practical application.

**FORMAT:** Lecture, 3 hours

**PREREQUISITE:** PSYO 1011.03 or 1021.03 and PSYO 1012.03 or 1022.03 or permission of instructor.

**KINE 3500.03: Principles of Measurement and Evaluation.**
An introduction to the fundamentals involved in measurement and evaluation, including writing objectives, designing and administering tests, organizing and analyzing test results. Tests used to measure physical fitness, specific motor skills and health knowledge are investigated.

**FORMAT:** Lecture, 3 hours

**PREREQUISITE:** PSYO 1011.03 or 1021.03 and PSYO 1012.03 or 1022.03 or permission of instructor.

**KINE 3482.03: Prevention and Care of Injuries.**
This course explores prevention, assessment, and treatment of injuries that are associated with participation in sport and physical activity. Students will learn about the major classes of neurological movement disorders, from assessment to intervention. The course will build upon introductory courses in neural basis of behavior.

**FORMAT:** Lecture 3 hours, tutorial 1 hour

**PREREQUISITE:** KINE 2430 or PSYO/NESC 2470

**RESTRICTION:** Restricted to Kinesiology students. Others by permission of instructor, with priority to Health Professions students.

**KINE 3474.03: Principles of Ergonomics.**
This course applies health and human performance concepts in kinesiology to the workplace. The course content includes identifying characteristics of work environments and the effect on performance and health, the design of effective workplaces and the use of training and educational programs to increase productivity and reduce injuries.

**FORMAT:** Lecture 5 hours, lab 1.5 hours

**PREREQUISITE:** KINE 2310.03, KINE 2320.03, KINE 2430.03, KINE 2465.03

**RESTRICTION:** Restricted to Kinesiology students. Others by permission of instructor, with priority to Health Professions students.

**KINE 3482.03: Prevention and Care of Injuries.**
This course explores the development of strategies for teaching, coaching and rehabilitating those affected. Emphasis is placed on the physical components of disability and the adaptation of the environment and equipment to facilitate learning of ADL and sport. A practicum is required.

**FORMAT:** Lecture 3 hours

**PREREQUISITE:** ANAT 1020.03 or ANAT 1010.03, PHYS 1010.06 or PHYS 1000.06 or PHYS 2030.06, KINE 2310.03, KINE 2320.03

**RESTRICTION:** Restricted to School of Health and Human Performance students. Others by permission of instructor, with priority to Health Professions students.

**KINE 3486.03: Psychology of Sport.**
This course offers an awareness and understanding of the phenomena involved in motor performance in sport. It will systematically analyze, investigate and assess psychological skills, attributes and preparation in this area, and their application in other environments. Emphasis will also be placed upon personal experience and practical application.

**FORMAT:** Lecture, 3 hours

**PREREQUISITE:** PSYO 1011.03 or 1021.03 and PSYO 1012.03 or 1022.03 or permission of instructor.

**KINE 3525.03: Principles of Motor Control and Learning.**
An introduction to the fundamentals involved in measurement and evaluation, including writing objectives, designing and administering tests, organizing and analyzing test results. Tests used to measure physical fitness, specific motor skills and health knowledge are investigated.

**FORMAT:** Lecture, 3 hours

**PREREQUISITE:** PSYO 1011.03 or 1021.03 and PSYO 1012.03 or 1022.03 or permission of instructor.

**KINE 3741.03: Coaching Science Practicum.**
The purpose of this course is to provide students with the opportunity to observe, identify, apply and evaluate the fundamental principles and methodologies of coaching that are associated with the creation of an effective practice, and training environment, for the developing athlete. This will be facilitated through the completion of a twelve week placement with a school, or club, mentor coach.

**FORMAT:** Placement with mentor coach, 3 hours per week

**PREREQUISITE:** KINE 3740.03

**FACULTY OF HEALTH PROFESSIONS**
KINE 4108.03: Mind/Body Connections and Well-being.

The connection of mind and body as it relates to well-being is addressed through a survey of complimentary (or alternative) healthcare practices including mind body medicine (e.g., relaxation, meditation), therapeutic systems (e.g., chiropractic, homeopathy), herbalogy, bodywork techniques (e.g., massage, pressure point therapies), movement therapies and exercise (e.g. Alexander, yoga) and integrated medical systems (e.g., Chinese Medicine, Ayurvedic). Theoretical and scientific bases of each are covered and controversies surrounding those practices are addressed. This course is not designed to train students to be practitioners of any technique.

FORMAT: Lecture 3 hours
PREREQUISITE: HAHP 3100.03
RESTRICTION: Restricted to students enrolled in their final year of study in the School of Health and Human Performance or by permission of instructor

KINE 4412.06: Advanced Exercise Testing and Prescription for Clinical Populations.

This class will cover advanced exercise testing techniques (e.g. graded exercise testing, ECG, etc.) in order to assess physical fitness in clinical populations as well as the theory required to design exercise programs for these populations. Physiotherapy and basic pharmacology will also be discussed. Disease topics covered include cardiovascular, pulmonary, metabolic and autoimmune diseases.

SIGNATURE REQUIRED
FORMAT: Lecture 3 hours, lab 1 hour
PREREQUISITE: ANAT 1020.03 or 1010.03, PHYS 1010.06 or PHYL 1000.06 or PHYS 2010.06, KINE 2310.03, KINE 3142.03, KINE 3149.03, CPR
RESTRICTION: Restricted to Kinesiology students. Others by permission of instructor, with priority to Health Professions students.

KINE 4466.03: Advanced Biomechanics.

This course takes a quantitative approach to understanding human movement from a mechanical perspective. Concepts presented in the course will be illustrated with examples taken from the areas of sport, exercise, activities of daily living, and ergonomics. Students will be introduced to several techniques used in biomechanical research.

FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: KINE 2465.03
RESTRICTION: Restricted to Kinesiology students. Others by permission of instructor, with priority to Health Professions students.

KINE 4577.03: Cognitive Ergonomics.

This course examines the role of cognition in injury prevention and human performance in the workplace. The course generally takes an information processing approach to various work-related issues. The course requirements include a written test on the content, a data collection project and a class presentation.

FORMAT: Lecture 3 hours
PREREQUISITE: KINE 3478.03
RESTRICTION: Restricted to Kinesiology students. Others by permission of instructor, with priority to Health Professions students.

KINE 4578.03: Physical Ergonomics.

This advanced level course examines the application of the physical sciences in the productivity, health and safety of the workplace. The course will consider the design of work and the workplace from a physical science perspective. Due emphasis will be placed on the importance of the understanding of, and designing for, the capacity and capabilities of the human operator. When possible, the course will consider the present national and international standards in health and safety related to the content areas. The course requirements include a written test on the content, a project and a class presentation.

FORMAT: Lecture 3 hours, lab 1 hour as required
PREREQUISITE: STAT 1060.03 or STAT 2000, KINE 2310.03, KINE 2320.03, KINE 2465.03, KINE 3478.03
RESTRICTION: Restricted to Kinesiology students. Others by permission of instructor, with priority to Health Professions students.

KINE 4588.03: Clinical and Occupational Kinesiology.

This advanced level course examines the role that Kinesiology can play in clinical and occupational settings. In particular, the course will expose the student to an integrated approach in human motion analysis with a primary focus on the use of electromyography, ultrasound and radiography to other biomechanical and physiological measures. Due emphasis will be placed on the importance of understanding the strengths and weaknesses of present laboratory and field measures of human motion. The course requirements include a written test on the content, a project and a class presentation.

FORMAT: Lecture 3 hours, lab 1 hour
PREREQUISITE: KINE 3414.03, KINE 4466.03
RESTRICTION: Restricted to Kinesiology students. Others by permission of instructor, with priority to Health Professions students.

KINE 4600.03: Practicum in Kinesiology.

Students take part in a supervised practical experience that links classroom knowledge to professional practice. Under the supervision of a Kinesiologist, students will consider the present national and international standards in health and safety related to the content areas. The course requirements include a written test on the content, a data collection project and a class presentation.

FORMAT: Field placement/semester
PREREQUISITE: KINE 1104.03, KINE 2310.03, KINE 2320.03, KINE 2403.03, KINE 2465.03, HAHP 2008.03, HAHP 3100.03, HAHP 2008.03, KINE 3505.03, and at least three 3000 or 4000 level kinesiology courses.
RESTRICTION: Restricted to Kinesiology students enrolled in their final year of study in the School of Health and Human Performance

KINE 4700/X.Y.06/4701.03/4702.03: Senior Seminar.

This course is tailored for small groups of students. It is designed to allow students to focus on a particular issue or set of related issues, that are not part of the regular curriculum. Part of this course could entail a practicum experience. The course will only be offered if a faculty member is available to supervise the work.

NOTE: Students taking KINE 4700 must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.
FORMAT: Seminar
RESTRICTION: Restricted to Kinesiology students in their final year of study.

KINE 4740.03: Advanced Coaching Science Seminar.

The purpose of this course is to provide students with the opportunity to learn about the advanced principles and concepts of effective coaching planning and practice. Students will design, quantify and monitor a season training plan using PLAN software, addressing the performance factors of speed, strength, suppleness, stamina and skill appropriate to the competitive level of the athlete, as well as the integration of psychological preparation and competitive strategies. The course will also prepare students to meet the requirements for Level Three of the Theory component of the national Coaching Certification Program (NCCP).

FORMAT: Group project/semester
PREREQUISITE: KINE 4740.03
RESTRICTION: Restricted to Kinesiology students in their final year of study.

KINE 4741.03: Advanced Coaching Science Practicum.

The purpose of this course is to provide students with the opportunity to observe, identify, apply and evaluate the advanced principles and methodologies of coaching that are associated with the creation of an effective practice, and training environment, for the developing athlete. This will be facilitated through the completion of a twelve week placement with a varsity, school, or club, mentor coach. Students will also apply an intervention strategy developed to enhance a customizable specific performance factor in a sport of choice.

FORMAT: Placement with mentor coach, 3 hours
PREREQUISITE: KINE 4740.03

KINE 4800/X.Y.06/4801.03/4802.03: Independent Study.

Senior undergraduate students develop an area of specialization under the direction of a faculty member.

FORMAT I: Experimental research (laboratory experiment) or other research study, 3 or 6 hours
FORMAT II: Literature research; 3 or 6 hours
NOTE: Students may take no more than a total of 6 credit hours of independent study.


Students carry out an independent piece of original research in the respective field of expertise of their supervisor. Students become familiar with the experimental procedures involved in data collection, analysis, literature searches and scientific writing.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMATT: Independent research.
RESTRICTION: Restricted to Kinesiology honors students.

E. Bachelor of Science (Recreation) - Therapeutic Recreation

Program Description
Therapeutic Recreation involves the delivery of change-oriented services to individuals with disabilities, illness and other limitations, with the focus on increasing quality of life through leisure and recreation involvement. The graduates of the Therapeutic Recreation degree will be skilled in the areas of disability and illness, leisure theory, assessment, planning (program and client planning), program implementation and evaluation, and documentation. Graduates will find employment in both traditional clinical settings such as rehabilitation facilities, psychiatric hospitals and nursing homes, and in community settings such as community mental health centres or associations for community living, etc.

Objectives
The general objectives of the program are:
1. To provide the student with a broad educational exposure to various social science and humanities disciplines (e.g., Psychology, Sociology, Economics, Political Science, Anthropology, History);
2. To familiarize students with current social science-based research methods and statistics;
3. To provide the student with the necessary skills and knowledge for entry into the roles of leadership, advocacy, consistency and education in recreation and leisure services;
4. To provide the necessary background to enable students to pursue graduate work in leisure studies, management studies or the social sciences and humanities.

Program of Study
On admission into the BSc (Recreation) program, all students will be issued a Program of Studies Form. It is the responsibility of the student to ensure that all of the course requirements for the degree as outlined on the form are completed for graduation.

Required Courses BSc (Recreation) - Therapeutic Recreation

• BAIHP 2000.03 3
• BAIHP 1000.03 3
• BAIHP 3100.03 3
• ANAT 1020.03 3
• PHYS 1010.06 6
• KINE 3104.03 3
• LEIS 1127.03 3
• LEIS 2127.03 3
• LEIS 2130.03 3
• LEIS 1127.03 3
• LEIS 3426.03 3
• LEIS 3362.03 3
• LEIS 3360.03 3
• LEIS 2361.03 3
• LEIS 2127.03 3
• LEIS 3426.03 3
• LEIS 2360.03 3
• LEIS 3424.03 3
• STAT 1060/MATH 1060.03 3
• LEIS 4546.03 3
• LEIS 4597.15 15

Required Arts and Social Science Courses

• PSYO 1011.03 or PSYO 1021.03 and PSYO 1022.03 3
• PSYO 2220.03 3
• SOSA 1000.06 or SOSA 1050.06 or SOSA 1200.06 3

Therapeutic Recreation Electives
Two of the following:
• LEIS 4402.03 3
• LEIS 4512.03 3

• LEIS 4546.03 3
• LEIS 4563.03 3
• Designated Elective* 3
• Open Electives** 27

* Designated electives can be chosen from the courses in the Language/ Humanities list (under Degree Requirements at the front of the calendar), Health Professions or Interdisciplinary Health Professions, Health Services Administration or Social Sciences.
**12 of the 27 credit hours of the open electives must be 2000 level or above.

NOTE: Students should consult the NCTRC website (http://www.NCTRC.org) for CTRS Certification requirements.

A. Bachelor of Science (Recreation)/Bachelor of Management

Program Description
The curriculum of this combined program was developed in response to guidance from alumni and practicing professionals in the field — it was clear that while graduates entering the field of recreation administration needed the strong grounding in the recreation discipline, they also needed more management skills. The Faculty of Management’s Bachelor of Management degree emphasizes an orientation to management in the public and non-profit sector. This combined degree program enhances career options of future recreation students. The Bachelor of Science (Recreation)/Bachelor of Management is a five-year program comprising 25 full credits (50 half credits). Upon completion of this program, the successful student graduates with a Bachelor of Science (Recreation) degree and a Bachelor of Management degree.

Objectives
1. To provide the student with a broad educational exposure to various social science and humanities disciplines (e.g., Psychology, Sociology, Economics, Political Science, Anthropology, History);
2. To familiarize students with current social science-based research methods and statistics;
3. To provide the student with the necessary skills and knowledge for entry into the professional roles of leadership, advocacy, education and service delivery in recreation.
4. To provide the necessary background to enable students to pursue graduate work in leisure studies, management studies, or the social sciences and humanities.

Required Courses - Bachelor of Science (Recreation)/Bachelor of Management

Required Health and Human Performance Courses

• BAIHP 2000.03 3
• BAIHP 1000.03 3
• BAIHP 1100.03 3
• LEIS 1127.03 3
• LEIS 2127.03 3
• LEIS 2361.03 3
• LEIS 2360.03 3
• LEIS 3424.03 3
• STAT 1060/MATH 1060.03 3
• LEIS 4546.03 3
• LEIS 4597.15 15

Required Arts and Social Science Courses

• PSYO 1011.03 or PSYO 1021.03 and PSYO 1022.03 3
• PSYO 2220.03 3
• SOSA 1000.06 or SOSA 1050.06 or SOSA 1200.06 3

Therapeutic Recreation Electives
Two of the following:
• LEIS 4402.03 3
• LEIS 4512.03 3

• MGMT 1001.03 3
• MGMT 1000.03 3
• MGMT 1601.03 3
• MGMT 1702.05 3
• MGMT 2101.03 3
• MGMT 2301.03 3
• MGMT 2304.03 3
• MGMT 2104.03 3

Required Management Courses

• MGMT 1001.03 3
• MGMT 1000.03 3
• MGMT 1601.03 3
• MGMT 1702.05 3
• MGMT 2101.03 3
• MGMT 2301.03 3
• MGMT 2304.03 3
• MGMT 2104.03 3

Recreation 395
Students wishing to be considered for entrance into the Honours Program must meet the minimum requirements listed below. Acceptance to the program after meeting these requirements will depend on a faculty member being willing to supervise the honours thesis.

1. Completed a minimum of 75 credit hours towards the Bachelor of Science (Recreation) degree. Normally students will have completed five semesters prior to beginning the honours component of the program.
2. Obtained a GPA of 3.5 based on the previous 45 credit hours of work.
3. Completed a 3000 level or higher LEIS course most related to the area of specialization.
4. Completed the Financial, Technical, Equipment and Space Support Form (this form is due by November 15th of the student's third year for Therapeutic Recreation students or with permission of the instructor).
5. Completed the Technical, Financial, Equipment and Space Support Form indicating the financial needs of the thesis can be met.

NOTE: Students accepted into the Honours program must complete LEIS 4101.03 and LEIS 4102.03. These six credit hours may be attributed as open electives or as required electives.

The Honours Program is part of the 120 credit hours required for the Bachelor of Science (Recreation) degree, or part of the 150 credit hours for Recreation Management.

Students accepted into the Honours program are required to attend an Honours seminar weekly for the first two months, and then monthly.

H. Bachelor of Science (Recreation) with Honours/ Bachelor of Management

LEIS Course Descriptions

LEIS 1127.03: Foundations of Recreation.

This course provides an introductory analysis of leisure in modern society from sociological, psychological, and social psychological perspectives. The role of leisure in the everyday life of individuals will be discussed in terms of social relationships, life stage, gender, the family, work, attitudes and motivations, etc. In addition, since the role and function of leisure is affected by political, economic, and cultural systems, a macro-level perspective on leisure will also be provided by focusing on such topics as the influence of modern technology, the commercialization of leisure, the influence of social institutions and of the mass media.

FORMAT: Lecture/discussion 3 hours

RESTRICTION: Restricted to Bachelor of Science (Recreation) students. Others by permission of instructor, with priority to Health Professions students.

LEIS 2130.03: Foundations and Concepts of Therapeutic Recreation.

This course provides the conceptual foundation for the study of therapeutic recreation. Philosophical, conceptual, and historical issues related to the delivery of therapeutic recreation services will be discussed in terms of health and wellness promotion. The course will also involve the examination of professional issues such as standards of practice, ethics, quality assurance, etc., the scope of therapeutic recreation services and service delivery settings. Finally, students will be exposed to the variety of therapeutic recreation settings through site visits and observation. Students are required to join a therapeutic recreation professional group or provide the instructor with documentation on their current membership in a therapeutic recreation organization.

FORMAT: Lecture/discussion 3 hours

RESTRICTION: Restricted to Bachelor of Science (Recreation) students. Others by permission of instructor, with priority to Health Professions students.

LEIS 2361.03: Program Planning.

Designing, planning, implementing and evaluating programs is fundamental to both leisure services and health education. Both disciplines develop programs to enhance the quality of life for individuals, groups and communities. This course reviews the principles of program planning, various program planning models, and examples of programs that are pertinent to leisure services and health education/promotion. The planning process will include issues such as targeting specific populations, scanning for needs and assets, partnering, managing stakeholder relationships, and evaluation.

FORMAT: Lecture/discussion 3 hours

RESTRICTION: Restricted to Bachelor of Science (Recreation), Bachelor of Science (Recreation)/Bachelor of Management and Bachelor of Science (Health Promotion) students or with permission of the instructor.

Other Required Courses

- MGMT 2401.03
- MGMT 2501.03
- MGMT 2601.03
- MGMT 4001.03

**Open Electives (27)**

**The equivalent of six credit hours must be chosen from any MGMT or LEIS course.**

Internship Requirement (LEIS 4997.15)

The equivalent of 2.5 (five half credits) fulfills the internship requirement during the student’s final year.

G. Bachelor of Science (Recreation) with Honours/ Bachelor of Management

**NOTE:** Students accepted into the Honours program must complete LEIS 4101.03 and LEIS 4102.03. These six credit hours may be attributed as open electives or as required electives.

**The equivalent of six credit hours must be chosen from any MGMT or LEIS course.**

**Other Required Courses**

- ECON 1101.03
- LEIS 1127.03
- PHYS 1000 or PHYS 1050 or PHYS 1100 or PHYS 1200
- Writing Requirement (6)*
- Open Electives (27)**

Students must complete a six credit hour writing requirement. This can be completed by choosing six credit hours from the list of Writing Courses within the Faculty of Arts and Science Degree requirements.

**The equivalent of 27 credit hours chosen from all courses offered in the University. Twelve of the 27 credit hours must be 2000 level or above.**

**The equivalent of six credit hours must be chosen from any MGMT or LEIS course.**

**NOTE:** Students accepted into the Honours program must complete LEIS 4101.03 and LEIS 4102.03. These six credit hours may be attributed as open electives or as required electives.

**The equivalent of six credit hours must be chosen from any MGMT or LEIS course.**

**Other Required Courses**

- ECON 1010.03
- LEIS 1127.03
- PHYS 1000 or PHYS 1050 or PHYS 1100 or PHYS 1200
- Writing Requirement (6)*
- Open Electives (27)**

**The equivalent of six credit hours must be chosen from any MGMT or LEIS course.**

**NOTE:** Students accepted into the Honours program must complete LEIS 4101.03 and LEIS 4102.03. These six credit hours may be attributed as open electives or as required electives.

**The equivalent of six credit hours must be chosen from any MGMT or LEIS course.**
LEIS 2384.03: Leisure and Individuals with Disabilities.

An introduction of current philosophy, issues and practices relating to leisure opportunities for persons who, due to physical, mental, and social conditions, have difficulty gaining access to community services. An analysis of leisure behaviors, attitudes and attitudinal development, barriers, and needs of individuals with various disabilities and members of the community will be provided throughout the course. Issues relating to mainstreaming, integration and normalization will be themes throughout the course. A practicum is required in order to facilitate hands-on experience with individuals with disabilities.

FORMAT: Lecture/discussion/practicum 3 hours

PREREQUISITE: LEIS 1127.03

RESTRICTION: Restricted to School of Health and Human Performance students. Others by permission of instructor, with priority to Health Professions students.

LEIS 3127.03: Leisure Education.

This course is designed to provide students with the knowledge and skills required to facilitate leisure education interventions designed to bring about desired changes in the leisure behavior of individuals with disabilities. While the focus of the course is on leisure education, the overarching concepts of health, wellness, and health promotion will be incorporated into the course material. The course will address the following three broad areas: a) concepts and models of leisure education, b) content related to specific skills required for leisure involvement (leisure awareness, values clarification, social skills development, friendship development, stress management, assertiveness, leisure resources, decision making, etc.) and c) instructional and instructional techniques used in leisure education. In addition, students will have the opportunity to plan and facilitate leisure education experiences in class.

FORMAT: Lecture/discussion/field trips 3 hours

PREREQUISITE: LEIS 1127.03, LEIS 2127.03; LEIS 2501.03, LEIS 2504.03

RESTRICTION: Restricted to Recreation students. Others by permission of instructor, with priority to Health Professions students.

LEIS 3296.03: Leadership and Group Dynamics.

This course will focus primarily on the functions of leadership and the process of small group dynamics, as applied to recreation and health education service delivery. Emphasis will be placed on the achievement of individual and group goals in health-related settings. In addition, effective leadership of individuals and groups within a community, through direct experience and observation, will be emphasized.

FORMAT: Lecture/discussion 3 hours

PREREQUISITE: LEIS 1127.03 or HPRO 1185.03

RESTRICTION: Restricted to Health Promotion and Recreation students.

LEIS 3360.03: Analysis of Leisure Service Delivery Settings.

Reflections on the twentieth century reveal tremendous changes in the way people live. These changes have impacted work, family structure, and mental and physical well-being, and signal the importance and need of opportunities for leisure pursuits. Leisure is one of life’s greatest gifts: an important dimension influencing the quality of an individual’s life. Similarly, leisure enhances the quality of life available to a society or culture. The growth of the leisure industry reflects the ever-increasing value that individuals are placing upon leisure in their lives. It is essential for the student of recreation management to know and understand that leisure delivery and life satisfaction are dependent upon effective organizational analysis and the quality of services provided. This course presents historical and current concepts of the diverse types of agencies and institutions providing leisure services in North America. It will review the nature and effectiveness of services provided by various leisure service agencies in the private, private non-profit, commercial recreation, travel and tourism sectors of the leisure industry. It will seek to (a) evaluate the political, social, physical and economic impact on each of the sectors, (b) determine ways of assessing the quality of service delivery, and (c) find ways of motivating improvements in the identifying and meeting of consumers’ leisure needs, today and in the future. Consideration is also given to organizational structure and governance within leisure service settings, and the incorporation of the “benefits based model” to leisure service delivery.

FORMAT: Lecture/discussion/science laboratory analysis/3 credit hours

PREREQUISITE: LEIS 1127.03 and LEIS 2127.03, PREREQUISITE: LEIS/PRO/HEED 2161.03, MGMT 1000.03, MGMT 1001.03, PUAD 2401.03

RESTRICTION: Restricted to Bachelor of Science (Recreation)/Bachelor of Management students. Others by permission of instructor, with priority to Health Professions students.

LEIS 3362.03: Financial Management and Fundraising.

This course builds on previous functions of management such as program planning and analysis of leisure services by further focusing on the budgeting process, cost analysis, pricing of services, resource inventory and management, fundraising and grant writing. Strategic analysis of economic trends in understanding financial management, purchasing, inventory control, fiscal policy and accountability, and financial auditing will also be examined. Course content will be presented through lecture, case study analysis, budget, and grant proposal development. Such information will be applicable to management of public, private, commercial and/or community non-governmental recreation, health, and/or sport organizations.

PREREQUISITE: LEIS/PRO/HEED 2161.03, MGMT 2101.03

EXCLUSION: LEIS 4581.03

RESTRICTION: Restricted to Bachelor of Science (Recreation)/Bachelor of Management students. Others with permission of the instructor.

LEIS 3370.03: Recreation Facility Design and Operations Management.

This course will emphasize the management functions of planning, organizing, and coordinating as it looks at the role of the manager in effectively managing recreation physical facilities and environmental resources. The course will cover the new and emerging trends in facility design and cover the management process in the planning, and construction of indoor and outdoor recreation facilities, parks, playgrounds and pools. The course content will also focus on the core operational management competencies essential for the management of recreational facilities: namely, organizational structure and staffing, facility operations and maintenance, control and security, risk management and litigation, equipment procuring and inventory control.

FORMAT: Lectures/guest lectures/lab analysis/practicum experience/practicums experience, 3 credit hours

PREREQUISITE: LEIS 1127.03, LEIS 2127.03, LEIS/PRO/HEED 2161.03, INFO 1601.03, MGMT 2503.03 and MGMT 2504.03

RESTRICTION: Restricted to Bachelor of Science (Recreation)/Bachelor of Management students. Others by permission of instructor, with priority to Health Professions students.

LEIS 3420.03: Therapeutic Recreation Service Delivery.

Issues related to the delivery of therapeutic recreation services will be the focus of this course. In particular, the following topics will be addressed: documentation in therapeutic recreation; client assessment issues; therapeutic recreation program planning; identifying client needs, selecting appropriate interventions, task and activity analysis, planning change-oriented programs, writing behavioral objectives, etc. Program and client evaluation, written plans of operation. The final component of this course will be the opportunity to work with individuals with disabilities in a program planning context.

FORMAT: Lecture/discussion/practicum 3 hours

PREREQUISITE: LEIS 1127.03, LEIS 2127.03, LEIS/PRO/HEED 2161.03, LEIS 2384.03, KINE 3384.03

RESTRICTION: Restricted to Bachelor of Science (Recreation) students. Others by permission of instructor, with priority to Health Professions students.

LEIS 3492.03: Counselling for Health and Well-being.

This course is designed to provide students with the knowledge and skills required to utilize effective communication and helping behaviors which are designed to facilitate change in the leisure behavior of individuals with disabilities or other health problems. While the focus of the course is on facilitation techniques, the overarching concepts of quality of life, health, and health promotion will be incorporated into the course material. The course will address four broad topical areas: a) concepts of quality of life, health, health promotion, and lifestyle; b) concepts and models of helping; c) communication skills and therapeutic techniques; d) lifestyle issues related to health and well-being. Finally, students will have the opportunity to practice counselling techniques through role playing and simulations.

FORMAT: Lecture/discussion/practicum 3 hours

PREREQUISITE: LEIS 1127.03, LEIS 2127.03, LEIS/PRO/HEED 2161.03, LEIS 2384.03

RESTRICTION: Restricted to Bachelor of Science (Recreation) students. Others by permission of instructor, with priority to Health Professions students.

LEIS 4101.03: Advanced Research Methods.

The purpose of this course is to provide students with an opportunity to develop their understanding of research methodologies and apply their knowledge to a specific research/leisure studies topic. Theories and methodologies will be
discussed with reference to leisure studies. The students will develop an honours thesis and ethics proposal as part of the course requirements.

LEIS 4102.03: Honours Thesis.
The purpose of this course is to develop research skills by conducting an independent research project and writing a formal research report based on the findings. Students will demonstrate their knowledge and ability in research methodologies, data collection, analysis, and formal academic writing.

RESTRICTION: Restricted to Recreation honours students.

LEIS 4362.03: Recreation Entrepreneurship and Special Events.
Through lecture, discussion, and case study analysis, this course will provide the student with advanced insight and applied experience in select individual-based management concepts and functions of directing, coordinating and staffing that will be useful to the potential or practicing manager in sport administration, community, or commercial leisure and health service delivery agencies. In particular, a focus will be directed towards special event planning and management, and marketing and business plan development.

PREREQUISITE: LEIS/HPRO/HEED 2361.03, LEIS 3362.03, MGMT 2303.03, MGMT 2304.03
EXCLUSION: LEIS 3361.03
RESTRICTION: Restricted to Bachelor of Science (Recreation)/Bachelor of Management students. Others with permission of the instructor.

LEIS 4365.03: Administrative Concepts in Therapeutic Recreation.
This course emphasizes the essentials of management that are pertinent to being an effective practicing therapeutic recreation manager in either a clinical setting, a healthcare facility, or a community-based leisure or health service setting. After introducing the student to the theory and discipline of management and related ethical perspectives, the course will examine selective administrative functions in each of the areas of (a) Operational Management, i.e., budgeting and financial management, sources of revenue generation and grant writing, decision making, problem solving and conflict management, etc., (b) Human Services Management, i.e., ethical perspectives of recreation services and the various service delivery issues specific to physical and developmental disabilities will be examined, including assessment procedures, program intervention techniques, documentation and efficacy of delivery issues specific to older adults will be examined. Finally, the therapeutic recreation service delivery issues specific to mental illness and addiction will be examined, including assessment procedures, program intervention techniques, etc. Site visits, observations, and simulations will be used to facilitate the application of this material.

FORMAT: Lecture/discussion/practicum 3 hours
PREREQUISITE: LEIS 2127.03, LEIS 2317.03, LEIS 2318.03, LEIS 3127.03, LEIS 3362.03, LEIS 3942.03, PSYO 2202.03
RESTRICTION: Restricted to Bachelor of Science (Recreation) students in their final two years of study. Others by permission of instructor, with priority to Health Professions students.

LEIS 4482.03: Therapeutic Recreation Specialization: Youth at Risk.
Youth as a sector of society and as a stage in human development is of great significance in the study of leisure. Particularly relevant is the issue of unemployment and underemployment which has created a number of problems such as low self-worth, alcohol use, teenage mothers, etc. There are programs being developed to address these problems, many of which are experientially based, e.g., Outward Bound, study service, service learning and national service. This course will study the phenomenon of youth development in the light of experiential educational approaches. During the course there will be an expectation that the students will meet and interact with a variety of youth. A practicum is included.

FORMAT: Lecture/practicum 3 hours discussion
PREREQUISITE: LEIS 2127.03, LEIS 2127.03, LEIS 2318.03, LEIS 2364.03, LEIS 3127.03, LEIS 3362.03, LEIS 3942.03, PSYO 2202.03
RESTRICTION: Bachelor of Science (Recreation) students in their final two years of study.

LEIS 4512.03: Therapeutic Recreation Specialization: Physical and Developmental Disabilities.
This course is an upper level therapeutic recreation specialization course which takes the concepts and skills learned in the previous therapeutic recreation courses and applies them specifically to clients with physical and developmental disabilities. Initially, issues related to etiology, characteristics, and treatment needs of clients with various physical and developmental disabilities will be discussed. The implications of these characteristics for therapeutic recreation services and the various service settings in which therapeutic recreation services are provided will then be examined. Finally, the therapeutic recreation service delivery issues specific to physical and developmental disabilities will be examined, including assessment procedures, program intervention techniques, etc. Site visits, observations, and simulations will be used to facilitate the application of this material.

FORMAT: Lecture/discussion/practicum 3 hours
PREREQUISITE: LEIS 2127.03, LEIS 2127.03, LEIS 2318.03, LEIS 2364.03, LEIS 3127.03, LEIS 3362.03, LEIS 3942.03, PSYO 2202.03
RESTRICTION: Restricted to Bachelor of Science (Recreation) students in their final two years of study. Others by permission of instructor, with priority to Health Professions students.

LEIS 4540.03: Therapeutic Recreation Specialization: Addiction and Mental Illness.
This course is an upper level therapeutic recreation specialization course which takes the concepts and skills learned in the previous therapeutic recreation courses and applies them specifically to clients with mental health problems and/or addiction. Initially, issues related to etiology, characteristics, and treatment needs of clients with addiction and mental illness will be discussed. The implications of these characteristics for therapeutic recreation services and the various service settings in which therapeutic recreation services are provided will then be examined. Finally, the therapeutic recreation service delivery issues specific to mental illness and addiction will be examined, including assessment procedures, program intervention techniques, etc. Site visits, observations, and simulations will be used to facilitate the application of this material.

FORMAT: Lecture/discussion/practicum 3 hours
PREREQUISITE: LEIS 2127.03, LEIS 2127.03, LEIS 2318.03, LEIS 2364.03, LEIS 3127.03, LEIS 3362.03, LEIS 3942.03, PSYO 2202.03
RESTRICTION: Restricted to Bachelor of Science (Recreation) students in their final two years of study. Others by permission of instructor, with priority to Health Professions students.

LEIS 4563.03: Therapeutic Recreation Specialization: Aging and Lifestyle.
This course is an upper level therapeutic recreation specialization course which takes the concepts and skills learned in the previous therapeutic recreation courses and applies them specifically to older adults. Initially, issues related to theories of aging, characteristics of older adults and pre-retirement planning will be discussed. The implications of these characteristics for therapeutic recreation services and the various service settings in which therapeutic recreation services are provided will then be examined. Finally, the therapeutic recreation service delivery issues specific to older adults will be examined, including assessment procedures, program intervention techniques, documentation and efficacy of therapeutic recreation service delivery issues specific to this population. Site visits, observations, and simulations will be used to facilitate the application of this material.

FORMAT: Lecture/discussion/practicum 3 hours
PREREQUISITE: LEIS 2127.03, LEIS 2127.03, LEIS 2318.03, LEIS 2364.03, LEIS 3127.03, LEIS 3362.03, LEIS 3942.03, PSYO 2202.03
RESTRICTION: Restricted to Bachelor of Science (Recreation) students in their final two years of study. Others by permission of instructor, with priority to Health Professions students.

LEIS 4597.15: Recreation Internship.
This course is an extended professional development internship during the final year of study. It requires the completion of a minimum 16 week, 35 hours per week internship in a recreation service delivery agency. The internship involves an in-depth agency analysis and the completion of a special service project for the agency, as well as several other academic projects. Details of the goals and specific procedures for the internship are contained in the current Internship Handbook.

FORMAT: Internship – 16 weeks in the Fall term (September–December), or Winter term (January–April)

PREREQUISITE: Completion of all other program requirements and approval of the Student Services Administrator/Standard First Aid and Level C CPR certifications. Minimum cumulative GPA of 2.0.

RESTRICTION: Restricted to Bachelor of Science (Recreation), and Bachelor of Science (Recreation)/Bachelor of Management students in their final term.
LEIS 4700.06/4701.03/4702.03: Senior Seminar.  
This course is tailored for small groups of students. It is designed to allow students to focus on a particular issue or set of related issues, that are not part of the regular curriculum. Part of this course could entail a practicum experience. The course will only be offered if a faculty member is available to supervise the work.  
FORMAT: Seminar  
RESTRICTION: Restricted to Recreation students in their final year of study

LEIS 4800X/Y.06/4801.03/4802.03: Independent Study.  
Senior undergraduate students develop an area of specialization under the direction of a faculty member.  
NOTE: Students taking 4800X/Y.06 must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.  
FORMAT: Library survey or other research study 3 or 6 credit hours  
PREREQUISITE: A GPA of at least 3.00, a “B” grade in an earlier class in the area in which the project will be conducted (where applicable), consent of advisor, consent of faculty. Intention to register for an Independent Study should be confirmed with the undergraduate secretary by April 1st of the preceding academic year. NOTE: Students may take no more than 6 credit hours of independent studies.

I. Course Description

HLTH 4040.03: Health Law for Non-Lawyers.
The objectives of this course is to provide the non-law student with an overview of significant legal issues that arise in the healthcare context. The first part of the course covers an introduction to the Canadian legal system, the Canadian healthcare system from a legal perspective, and the nature of legal proceedings.
The second part focuses on issues of particular relevance in the provision of health services; these issues may include: practice management; confidentiality and disclosure of information, including whistle blowing; consent to treatment, including issues regarding minors and those lacking capacity; mental health law; and the regulation of drugs. Finally, the third part addresses contemporary issues in health law such as cost containment, issues of care at the end of life, and the impact of human rights legislation on healthcare services and delivery.
FORMAT: Fall term BLS
RESTRICTION: Health Profession students only
Health Sciences

Location: School of Health Sciences, 6th Floor, Beedie Building
1276 South Park Street
Halifax, NS B3H 2Y9

Bachelor of Health Science (Specific Discipline) degree. The programs leading to Cytology, Diagnostic Medical Ultrasound, and Respiratory Therapy only) and a Bachelor of Health Science (specific Discipline) degree. The programs leading to these credentials are accredited. The University does not determine eligibility for certification/registry exams. Rather, through accreditation, the University ensures that graduates of its programs meet the eligibility criteria set by the professional associations. Diagnostic Cytology, Diagnostic Medical Ultrasound (General, Cardiac and Vascular), Nuclear Medicine and Radiological Technology are accredited by The Canadian Medical Association. Respiratory Therapy is accredited by The Council on Accreditation for Respiratory Therapy Education.

I. Bachelor of Health Science Degree Program

The BHSc program is a four-year degree program that provides an integrated curriculum that includes core, interdisciplinary and discipline-specific courses. Clinical practice is included in each year of study requiring a full-time commitment in the May-June time period.

In order to accommodate all third-year Respiratory Therapy students in required clinical rotations, courses for this group only will begin on August 27, 2014.

Dalhousie University confers a Diploma in Health Science (for Diagnostic Cytology, Diagnostic Medical Ultrasonic, and Respiratory Therapy only) and a Bachelor of Health Science (Specific Discipline) degree. The programs leading to these credentials are accredited. The University does not determine eligibility for certification/registry exams. Rather, through accreditation, the University ensures that graduates of its programs meet the eligibility criteria set by the professional associations. Diagnostic Cytology, Diagnostic Medical Ultrasound (General, Cardiac and Vascular), Nuclear Medicine and Radiological Technology are accredited by The Canadian Medical Association. Respiratory Therapy is accredited by The Council on Accreditation for Respiratory Therapy Education.

A. For the professions of Diagnostic Cytology*, Diagnostic Medical Ultrasonic, and Respiratory Therapy

Students are eligible to write the certification/registry exam upon successful completion of Year 3, when all requirements for a diploma exit have been met. They are eligible even if they choose not to exit with a diploma. Students should check with faculty concerning examination dates.

Following degree completion, students in Diagnostic Medical Ultrasound may be eligible to write certification/registry exams in the specialized areas of cardiac and vascular sonography.

**Note that intake to the Diagnostic Cytology program is suspended for 2014-2015.

B. For the professions of Nuclear Medicine Technology and Radiological Technology

Students are eligible to write the Certification registry exam upon successful completion of the Bachelor of Health Science degree.

II. The Professions

Diagnostic Cytology

A cytotechnologist is a health professional who specializes in detecting and diagnosing cancer at a cellular level. A cytotechnologist requires expertise and precise diagnostic skills to identify and accurately evaluate minute changes within cells to provide a diagnosis. A cytotechnologist integrates scientific knowledge, cellular morphology and clinical history to formulate a cytological report. The cytotechnologist must be comfortable with using a compound microscope so this is how s/he must spend a great portion of their day. The cytotechnologist has limited patient contact, but must communicate effectively with other health care professionals in discussing results, procedures and/or policies and practices.

Diagnostic Medical Ultrasound

The Diagnostic Medical Sonographer utilizes high frequency sound waves, specialized equipment, and other diagnostic techniques to collect detailed information on the anatomical, physiological and pathological state of the patient. This health professional is able to produce and evaluate ultrasound images and related data that are used by specialized physicians to render a medical diagnosis. Sonographers typically provide technical expertise in abdominal, superficial structures, obstetrics/gynecology, vascular and cardiac applications.

Nuclear Medicine Technology

A nuclear medicine technologist is a health professional responsible for performing diagnostic and therapeutic nuclear medicine procedures. The technologist administers radiopharmaceuticals to the patient most often by way of an intravenous injection while adhering to proper drug preparation techniques, radiation protection guidelines and patient care practices.

The technologist operates a variety of radiation detection equipment, one of which is the gamma camera, in order to provide an assessment of the distribution of the radiopharmaceutical within the patient. By using various computer programs, the technologist analyzes the data to obtain the best information from the study which is then interpreted by a nuclear medicine physician.
First Aid Certification
• All BHSc students must present proof of current certification in BLS at a BLS-HCP Certification

Criminal Record Check
2. Upon entering the program students must show certification
1. It is a regulation of the Faculty of Health Professions and affiliated health care
found at

Respiratory Therapy
A respiratory therapist is a health professional who assists in the diagnosis, treatment and health promotion of patients with cardio-respiratory disorders through therapeutic means. Respiratory therapists provide cardio-pulmonary support, including cardio-pulmonary resuscitation, mechanical ventilation support, administration of medical gases, aerosolized medications, humidity therapy and airway management. The respiratory therapist also performs respiratory assessments of patients, tests and monitors cardio-pulmonary function, assists with the transport of high-risk patients and participates in home care programs.

The therapist plays an important role in the education of patients, families and hospital staff. The therapist is also involved in the maintenance, repair, testing and evaluation of respiratory equipment. The therapist must be able to provide competent assistance in cardio-pulmonary research.

III. Pre-Enrolment Requirements
Immunization (current detailed version of policy can be found at http://www.dal.ca/shs (current students, Policies and Guidelines))
1. It is a regulation of the Faculty of Health Professions and affiliated health care agencies that all students must be immunized. This has been instituted to protect patients as well as to protect students and employees.
2. Upon entering the program students must show certification for current immune status against tetanus, diphtheria, measles, mumps, rubella, rubeola and varicella (chickenpox). Evidence of tuberculosis testing (Mantoux – two step method) must also be shown. Annual Mantoux testing is also required. It is also recommended that students be immunized for influenza on an annual basis.

The Hepatitis-B vaccination is required for all students. It is a series of three injections: the second and third shots are administered one month and six months after the first injection. The vaccination lasts for several years. This cost (approximately $105, subject to change) must be paid by the student.

Criminal Record Check
• All BHSc students must provide a criminal record check (obtained within the previous six months) prior to attendance at any Capital Health or IWK facility.

BLS-HCP Certification
• All BHSc students must present proof of current certification in BLS at a Healthcare Provider prior to entry into the program. Students are required to maintain current certification throughout the program.

First Aid Certification
• All BHSc students must show proof of Standard First Aid current certification prior to entry into the program. Standard First Aid must be recertified bi-annually.

N95 Mask Fit Testing
• All BHSc students must be mask fit tested for a particulate respirator according to clinical site requirements. This must be recertified every two years, and may need to be recertified annually, depending on the mask in use at your clinical site. Note: There is a cost to the student for this procedure. Consult your school for details.

IV. Additional Costs
There are additional costs associated with all professional streams of the BHSc program, including but not limited to Standard First Aid and BLS-HCP certification, immunization, uniforms, membership in professional associations, equipment, fees for writing registry exams, mask fit testing, criminal record check, and travel to clinical sites. These additional costs are the responsibility of the student. A detailed list is available from the School.

V. Intellectual, Emotional and Physical Demands
The health professions included in the Bachelor of Health Science program are intellectually, emotionally and physically demanding. It is important that students become familiar with the profession before entering the program so that they are able to function at an acceptable standard. It is common to have to lift and move heavy equipment, position patients, wear lead aprons, manipulate valves and knobs on equipment, remain on your feet for extended periods of time and move frequently from one clinical area to another. It is also common to have to view information displayed on computer monitors or on slides under a microscope. It might be necessary to distinguish fine gradations of color and to respond to alarms and buzzers. There may be emergency situations that arise in the health care setting that require students to respond immediately. Shift work may be required, including rotating 12-hour shifts. Latex gloves are in wide use and chemicals are used in a variety of settings. Refer to http://www.dal.ca/shs (Admissions) for Statements of Fitness required for each profession. Students who have concerns about fitness should contact the School for further information.

VI. Program Outline
Four-Year Entry-Level Program
The curriculum is comprised of four years of full-time study with each year including core, interdisciplinary, discipline-specific, health professional and basic science courses.

Fourth-year BHSc students must meet the School’s clinical skills maintenance requirements and complete the “Record of Clinical Practice for Year 4” each term, until the 4th-year classwork is completed. Students should contact the School for full details.

Diagnostic Cytology
Please note that this program has suspended admissions for the 2014-2015 academic year.

Year 1
• BIOL 1240.03
• BIOL 1020.03
• CHEM 1410.03
• DCY 1000.03
• DCY 1010.03
• DCY 1500.03
• HISCE 1000.03
• HISCE 1010.03
• HISCE 1020.03
• HISCE 1030.03
• JPH 4000.00 (section 3)
• SAT 1600.03

Year 2
• BIOL 2020.03
• DCY 2001.03
• DCY 2002.03
• DCY 2010.03
• DCY 2500.03
Faculty of Health Professions

**Health Sciences**

**Year 3**
- HESA 4000.03
- HSCE 3000.03
- HSCE 3010.03
- IPHE 4000.00 (section 3)
- MICI 1100.03
- Electives (three credit hours)

**Year 4**
- BIOL 3024.03
- BIOL 3430.03
- DCYT 3000.03
- DCYT 3010.03
- DCYT 3200.03
- DCYT 3210.03
- DCYT 3220.03
- DCYT 3240.03
- DCYT 3250.03
- IPHE 4000.00 (section 3)

**Diagnostic Medical Ultrasound**

**Year 1**
- DMUT 1000.03
- DMUT 1010.03
- DMUT 1020.03
- DMUT 1500.03
- HAHP 2000.03
- HSCE 1000.03
- HSCE 1010.03
- HSCE 1020.03
- HSCE 1030.03
- IPHE 4000.00 (section 3)
- PHYC 1300X/Y.06

**Year 2**
- DMUT 2000.03
- DMUT 2010.03
- DMUT 2020.03
- DMUT 2030.03
- DMUT 2040.03
- DMUT 2500.03
- HSCE 2000.03
- HSCE 2010.03
- HSCE 2020.03
- IPHE 4000.00 (section 3)
- STAT 1040.03

**Year 3**
- DMUT 3000.03
- DMUT 3010.03
- DMUT 3020.03
- DMUT 3200.03
- DMUT 3210.03
- DMUT 3220.03
- DMUT 3240.03
- DMUT 3250.03
- HSCE 3000.03
- HSCE 3010.03
- IPHE 4000.00 (section 3)
- Electives (three credit hours or HLTH 4040.03 if enrolled in MRIT certificate program)
- MRIT 4100.03 (if enrolled in MRIT certificate program)

**Year 4**
- Required:
  - HLTH 4040.03
  - HSCE 4030.03
  - HSCE 4200.03
  - HSCE 4220.03
  - IPHE 4000.00 (section 3)
  - Approved electives (six credit hours)
  - MRIT 4100.03 (if enrolled in MRIT certificate program)

**Nuclear Medicine Technology**

**Year 1**
- HSCE 1000.03
- HSCE 1010.03
- HSCE 1020.03
- HSCE 1030.03
- HSCE 2000.03
- IPHE 4000.00 (section 3)
- NUMT 1000.03
- NUMT 1010.03
- NUMT 1020.03
- PHYC 1300X/Y.06

**Year 2**
- HSCE 2000.03
- HSCE 2010.03
- HSCE 2020.03
- HSCE 2040.03
- HSCE 3000.03
- IPHE 4000.00 (section 3)
- NUMT 1000.03
- NUMT 1010.03
- NUMT 2000.03
- NUMT 2010.03
- NUMT 2020.03
- NUMT 2030.03
- STAT 1060.03
Year 3  
- HLTH 4040.03
- HSCE 3000.03
- HSCE 4030.03
- IPHE 4900.00 (section 3)
- NUMT 3010.03
- MRT 4010.03
- IPHE 4000.00 (section 3)
- RADT 3000.03
- RADT 3010.03
- RADT 3210.03
- RADT 3220.03
- RADT 3240.06
- RADT 3500.03
- MRIT 4100.03 (if enrolled in MRIT certificate program)

Year 4  
Required:  
- HLTH 4040.03
- HSCE 4200.03
- HSCE 4220.03
- IPHE 4900.00 (section 3)
- NUMT 3210.03
- NUMT 3240.03
- NUMT 3220.03
- NUMT 3230.03
- NUMT 3500.03
- Elective (three credit hours)

Choose 12 credit hours:  
- HESA 4001.03
- HESA 4003.03
- HESA 4004.03
- HESA 4005.03
- HESA 4006.03
- HESA 4400.03
- HPRO 3150.03
- HPRO 3165.03
- HPRO 3375.03
- IPHE 4000.00 (section 3)
- RSPT 4100.06
- RSPT 4000.12
- Approved electives (six credit hours)

Or, for an MRIT certificate:  
Required:  
- MRIT 4110.03
- MRIT 4120.03
- MRIT 4130.03
- NUMT 4000.12
- Elective (three credit hours)

Radiological Technology  
Year 3  
- HSCE 1000.03
- HSCE 1010.03
- HSCE 1020.03
- HSCE 1030.03
- IPHE 4900.00 (section 3)
- PHYC 1300X/Y.06
- RSPT 1000.03
- RSPT 1010.03
- RSPT 1020.03
- RSPT 1500.03
- Elective (three credit hours)

Year 4  
- HSCE 2000.03
- HSCE 2010.03
- HSCE 2020.03
- HSCE 2030.03
- HSCE 2040.03
- IPHE 4000.00 (section 3)
- RADT 2000.03
- RADT 2020.03
- RADT 2010.03
- RADT 2000.03
-STAT 1060.03
- Elective (three credit hours)

Respiratory Therapy  
Year 1  
- BIOC 1420.03
- CHEM 1410.03
- HSCE 1000.03
- HSCE 1010.03
- HSCE 1020.03
- HSCE 1030.03
- IPHE 4000.00 (section 3)
- PHVC 1300X/Y.06
- RSPT 1000.03
- RSPT 1010.03
- RSPT 1020.03
- RSPT 1030.03
- STAT 1060.03

Year 2  
- HSCE 2000.03
- HSCE 3000.03
- IPHE 4000.00 (section 3)
- RSPT 2000.03

Note: RSPT 4210.03 is considered an “approved elective.”
The post-diploma BHSc curriculum is equivalent to two years of full time university study (60 credit hours). Courses may be completed in the sequence best suited for the student; however, attention must be paid to the course pre-requisites.

It is the responsibility of each individual student to ensure she/he is enrolled in the courses required to complete the BHSc program of study. Therefore students are expected to meet with their academic advisors to seek counselling in this regard, to ensure that course selections and course load are appropriate, and will not cause difficulties later on in the program.

404 Health Sciences
Permission to carry more than a normal workload

A workload exceeding these audit hours in any given term will be considered an overload.

- Students who wish to take on an overload must have the approval from the School of Health Sciences Academic Regulations Officer. Any student applying for an increased workload (overload) must apply at least four weeks in advance of the start of the semester or year in question.
- Students should contact their program coordinator and the School of Health Sciences Academic Regulations Officer to request a Waiver of Academic Regulation.
- Applications from students who give good reasons for wishing to take an overload will be considered. Such permission will not normally be granted to students who, in the first year of study, or to any student in full-time academic term, obtained a grade point average of less than 3.00.
- During Clinical Practicum and/or Clinical Education Courses no additional courses will be permitted without prior approval from the Academic Regulations Officer.
- Such requests require student completion of a Waiver of Academic Regulation Application, available from your academic advisor, or the Registrar’s Office.
- Students who exceed the normal workload per academic term without the Academic Regulations Officer’s approval, will be required to withdraw from the course.

Attendance at Courses

Regular and punctual attendance at courses is required; students are expected to notify instructors if they are going to miss a course. When the work of a student becomes unsatisfactory or attendance is irregular, the student may be required to withdraw from the school.

Grade Requirements

A student must receive a grade of C+ in each course with a course number in the School of Health Sciences (HSC, DCCY, DMMT, MIDE, MRT, NUMT, RADT, RSIPT) in order for that course:
- to be counted as a prerequisite for another course;
- to be credited towards the Bachelor of Health Science or Diploma in Health Science.
- to be considered as a prerequisite for another course.

Since most professional courses are prerequisites for more advanced courses and for clinical practice, the student’s academic progress will be severely impacted by a failure. Students must seek academic advice.

Any student failing a required course for the second time must withdraw from the School of Health Sciences. Students who, in a failed third year, fail their reasons for seeking an overload and include supporting arguments and evidence, such as their academic record and any other relevant considerations.

Supplemental Exams

Supplemental Exams must be passed before the student can begin their clinical placement. In no case will a clinical placement be delayed for more than two weeks.

No more than two supplemental exams for courses with course numbers in the School of Health Sciences will be allowed in any one year. Only one supplemental exam is allowed per course.

Voluntary Withdrawal

Students who voluntarily withdraw from the School of Health Sciences, having satisfactorily completed courses toward the BHSc (specific discipline) degree, with the intention of returning at a later date and advised that re-admission is contingent upon there being an available place.

Leave of Absence

1. Students who apply for a leave of absence (LOA) from their program of study must do so in writing to the School of Health Sciences Academic Regulations Officer. If possible, such applications should be made in advance of the term or year for which a LOA is being requested.
2. A request for Leave of Absence may be for a duration of one term to a maximum of one year in length. Students are eligible for a maximum of one such leave for the duration of their program.
3. Following approval of the application for LOA, the Academic Regulations Officer will notify the following individuals:
   a) The student;
   b) Dalhousie University Registrar’s Office;
   c) Students Services office at the School; and
   d) Student’s academic advisor.
4. Students may apply to return to the program prior to the designated end of the LOA. At the time students return to the program, the LOA is considered ended.
5. At least two to three months prior to returning to the program, students granted LOA will inform the following, in writing, of their intent to resume their studies:
   a) Academic Regulations Officer;
   b) Student’s academic advisor.

Policies on Students at Academic Risk

The School of Health Sciences Studies at Academic Risk Policy aims to identify students at risk and recommend a course of academic and clinical remediation to ensure minimum clinical competencies are maintained.

Re-Admission of Academically Dismissed Students Policy

The primary goal of the School of Health Sciences and Dalhousie University is to ensure students are successful in their chosen profession while maintaining integrity of the program. Academic Regulation Section 20.1.3 allows for students who have been academically dismissed to apply for readmission to the University. Decisions on re-admission to a program in the School of Health Sciences are made in consultation with the individual student, clinical coordinator, and the Admissions Committee and will include, but not be limited to, consideration of availability of clinical placements.
Health Sciences

expected level of performance. Clinical Education Courses are taken in Year 3 at examination to assess knowledge of subject matter, and practical assessments to health care. Evaluation methods may include, but are not limited to, a written experiences designed to enhance students' understanding of the team approach to share their expertise with students. There may be interprofessional learning critical reasoning skills. Medical specialists and practitioners may be invited to students by facilitating seminars/tutorials, conducting assessments, providing rotation. Students may be required to travel to a site outside Halifax in order to in a specific area of clinical practice. Scheduling requires full-time rotations in the These courses provide students with an opportunity to gain hands-on experience growth through introspection and reflection by maintaining journals, recording application of theory to practice. Students monitor their personal and professional assessment of skills competencies, demonstration of professional behaviors, and preceptor ratio is one-to-one. Evaluation may include, but is not limited to, student/ student. Students are scheduled in a clinical setting for eight-to-ten consecutive weeks, and are supervised by faculty and/or preceptors. The normal student/length within the Halifax region, throughout the Atlantic provinces, and in various sites across Canada. All expenses related to clinical placement are the responsibility of the student. Clinical placements will be arranged by the Clinical Coordinator for the School of Health Sciences. Students may be assigned to clinical sites located within the Halifax region, throughout the Atlantic provinces, and in various sites across Canada. All expenses related to clinical placement are the responsibility of the student. Students are scheduled in a clinical setting for eight-to-ten consecutive weeks, and are supervised by faculty and/or preceptors. The normal student/preceptor ratio is one-to-one. Evaluation may include, but is not limited to, assessment of skills competencies, demonstration of professional behaviors, and application of theory to practice. Students monitor their personal and professional growth through introspection and reflection by maintaining journals, recording experiences in skills log books, successfully passing examinations or presenting case studies.

Two elements of clinical education are:

1. Clinical Practicum

The program includes three clinical practice periods during the May – early July time period following Years 1, 2, and 3. The Clinical Practicum is designed to prepare students with opportunities to develop the knowledge, skills and professional attitudes necessary to function as competent entry-level practitioners within a variety of settings and roles. Students are assigned to various clinical sites, based on their level within the program, the expected learning outcomes of their professional stream, and the availability of appropriate sites.

Clinical placements will be arranged by the Clinical Coordinator for the School of Health Sciences. Students may be assigned to clinical sites located within the Halifax region, throughout the Atlantic provinces, and in various sites across Canada. All expenses related to clinical placement are the responsibility of the student. Students are scheduled in a clinical setting for eight-to-ten consecutive weeks, and are supervised by faculty and/or preceptors. The normal student/preceptor ratio is one-to-one. Evaluation may include, but is not limited to, assessment of skills competencies, demonstration of professional behaviors, and application of theory to practice. Students monitor their personal and professional growth through introspection and reflection by maintaining journals, recording experiences in skills log books, successfully passing examinations or presenting case studies.

2. Clinical Education Courses

These courses provide students with an opportunity to gain hands-on experience in a specific area of clinical practice. Scheduling requires full-time rotations in the clinical setting and, depending on the area, may require skill work and/or off-site rotation. Students may be required to travel to a site outside Halifax in order to meet their clinical learning objectives. Preceptors supervise and guide students through the period of study and skills practice. Faculty continues to support students by facilitating seminars/tutorials, conducting assessments, providing constructive feedback and structuring learning experiences to further develop critical reasoning skills. Medical specialists and practitioners may be invited to share their expertise with students. There may be interprofessional learning experiences designed to enhance students' understanding of the team approach to health care. Evaluation methods may include, but are not limited to, a written examination to assess knowledge of subject matter and practical assessments to confirm that clinical skills and professional behavior are readily applied at the expected level of performance. Clinical Education Courses are taken in Year 3 at all programs. In addition, Clinical Education Courses are a required part of the Year 4 curriculum for students in Nuclear Medicine Technology and Radiological Technology.

IX. Interprofessional Health Education

Students are required to maintain enrolment in IPHE 4900 (see calendar section on Health Professions, Interprofessional Health Education) for the duration of their studies. Please register in IPHE 4900.00 section 3. Successful completion of this course is a requirement for graduation and will be recognized further with the awarding of a special Certificate in Interprofessional Collaboration to be presented by the Faculty of Health Professions. Students are asked to consult with their individual school/college to determine the specific guidelines and expectations regarding the required portfolio.

X. Course Descriptions

DCYT 1000.03: Diagnostic Cytology Laboratory Applications. This course provides a comprehensive study of topics relevant to the Diagnostic Cytology laboratory. Safety, collection of specimens, interpretation of clinical data, cytopreparatory techniques, and specimen processing are examined. Topics such as quality assurance, fixation and transcription of biological specimens, record keeping and organization of the Diagnostic Cytology laboratory will be discussed. Laboratory sessions will demonstrate the techniques required to prepare, and process a specimen adequate for cytolgic diagnosis. In this context, emphasis will be placed on safe professional practice and the delivery of care.

FORM: Lecture 3 hours, lab 2 hours
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Cytology

DCYT 1010.03: Gynecological Cytopathology I. This course is designed to provide the foundation in gynecological Cytopathology. The purpose of the course is to introduce the basic skills and knowledge required to interpret, interpret and evaluate the cellular morphology of normal histologic tissues, cytocine cellular specimens of normal and benign processes of the female reproductive tract. Emphasis will be placed on the critical evaluation of pathologic and cytocine characteristics of normal and benign processes. The course will further allow students to maintain their professional practice in the role of respect towards the patient.

FORM: Lecture 3 hours, lab 4 hours
PREREQUISITE: HSCE 1030.03, DCYT 1000.03, HSCE 1020.03
CO-REQUISITE: HSCE 1030.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Cytology

DCYT 1500.03: Laboratory and Clinical Gynecological Applications I. This clinical practicum enables the student to integrate theoretical knowledge with application to specimen procurement and normal and benign gynecologic diagnoses. The student consolidates concepts, techniques and knowledge required to perform skills introduced in DCYT 1000.03, DCYT 1010.03, HSCE 1000.03. Students are expected to work under direct supervision, assume responsibility for their actions and decisions and to interact effectively with peers, technologists, supervisors and medical staff.

FORM: Full-time rotations in clinical settings
PREREQUISITE: BIOL 1010.03 or 1020.03 and DCYT 1010 and HSCE 1020, and HSCE 1010
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Cytology

DCYT 2000/YT:06: Gynecological Cytology II. This course provides a high level of study in gynecological Cytopathology. The purpose of the course is to further develop the diagnostic skills required to integrate, interpret and evaluate the cellular morphology of normal and benign processes of the female reproductive tract. Students will be introduced to the cellular morphology, nomenclature and diagnostic application of abnormal and malignant disease processes of the female reproductive tract. Emphasis will be placed on the critical evaluation of pathologic and cytocine characteristics. The student will be placed in a simulated environment where diagnosis and reporting will be the focus. This environment provides an opportunity for active learning, feedback, communication between student and faculty as well as self evaluation.

406 Health Sciences
The course will further allow students to maintain their professional practice in the role of respect towards the patient. NOTE: Students taking this class must register in both X and Y in consecutive terms, credit will be given only if both are completed consecutively.

FORMATT: Lecture 3 hours, labs 3 hours.

RESTRICTION: Reenrolled to the Bachelor of Health Science students in the professional stream of Diagnostic Cytology.

DCYT 2001.03: Gynecological Cytopathology II.
This course will focus on the cellular morphology and nomenclature of abnormal and malignant disease in gynecological cytology. Emphasis will be placed on the interpretation and critical evaluation of the cellular morphology of normal, benign and malignant disease processes. A variety of therapy modalities and recent advances will be examined.

NOTE: Students taking this class must register in both DCYT 2001 and DCYT 2002 in consecutive terms.

FORMATT: Lecture 3 hours, labs 3 hours.

PREREQUISITE: DCYT 1500.03
EXCLUSION: DCYT 2490.06

RESTRICTION: Reenrolled to the Bachelor of Health Science students in the professional stream of Diagnostic Cytology.

DCYT 2002.03: Clinical Application for Gynecological Cytopathology.
This clinical education course will provide an opportunity for students to integrate theory from DCYT 2001.03 into clinical practice. This course will offer a simulated environment where diagnosis and reporting of gynecologic specimens will be the focus.

FORMATT: Lecture 3 hours twice a week.

PREREQUISITE: DCYT 1500 and DCYT 2001
EXCLUSION: DCYT 2000.06

RESTRICTION: Reenrolled to Bachelor of Health Science in the professional stream of Diagnostic Cytology.

DCYT 2010.03: Pathology and Histopathology for Diagnostic Cytology.
This course provides a basic understanding of the disease process at the tissue level. It provides the appropriate information that will allow a student to recognize morphological features that are related to the origin of the cells. In the General Pathology component, topics covered include: cell injury and adaptation, inflammation and repair, disorders of growth, fluid and hemodynamic arrangements, neoplasia, environmental and nutritional diseases, microbiology and cancer. The Systems Pathology component covers all the body systems and enables the student to identify histologic processes related to various disease processes.

FORMATT: Lecture 3 hours.

PREREQUISITE: DCYT 1500.03

RESTRICTION: Reenrolled to Bachelor of Health Science in the professional stream of Diagnostic Cytology.

DCYT 2500.03: Gynecological Cytopathology Practicum.
This practicum will prepare the student, in a clinical setting, to integrate and apply knowledge and skills introduced during DCYT 2001.03 into clinical practice. This course will offer a simulated environment where diagnosis and reporting of gynecologic specimens will be the focus. This environment provides an opportunity for students to further their abilities, formulate decision and implement diagnostic expertise in relation to gynecological clinical competencies. This provides an opportunity to implement and enhance knowledge with application to diagnostic. Under supervision, students assume responsibility and build their case load to approximately 70% of that of an entry-level diagnostic cytotechnologist.

FORMATT: Full time clinical rotation

PREREQUISITE: DCYT 2000.03, DCYT 3010.03, DCYT 3200.03, 3204.03

RESTRICTION: Reenrolled to Bachelor of Health Science students in the professional stream of Diagnostic Cytology.

DCYT 3200.03: Diagnostic Gynecological Cytology Application I.
This third year course is a 3.0 credit hour gynecological clinical education course. This will provide an opportunity for students to further their abilities, formulate decisions and implement diagnostic expertise in relation to gynecological clinical competencies. This provides an opportunity to implement and enhance knowledge with application to diagnosis. Under supervision, students assume responsibility and build their case load to approximately 80% of that of an entry-level diagnostic cytotechnologist.

FORMATT: Full time clinical rotation

PREREQUISITE: DCYT 2500.03

RESTRICTION: Reenrolled to Bachelor of Health Science students in the professional stream of Diagnostic Cytology.

DCYT 3210.03: Diagnostic Gynecological Cytology Application II.
This third year course is a 3.0 credit hour gynecological clinical education course. This will provide an opportunity for students to further their abilities, formulate decisions and implement diagnostic expertise in relation to gynecological clinical competencies. This provides an opportunity to implement and build upon knowledge and experience with application to diagnostic gynecology. Under supervision, students assume responsibility and build their case load to approximately 80% of that of an entry-level diagnostic cytotechnologist.

FORMATT: Full time clinical rotation

PREREQUISITE: DCYT 3200.03

RESTRICTION: Reenrolled to Bachelor of Health Science students in the professional stream of Diagnostic Cytology.

DCYT 3220.03: Diagnostic Gynecological Cytology Application III.
This third year course is a 3.0 credit hour gynecological clinical education course. This will provide an opportunity for students to further their abilities, formulate decisions and implement diagnostic expertise in relation to gynecological clinical competencies. This provides an opportunity to implement and further build upon...
knowledge and experience with application to diagnostic gained in DCYT 3210.03. Under supervision, students assume responsibility and build their case load to approximately 90% of that of an entry-level diagnostic cytotechnologist.

DMUT 1500.03: Clinical Practicum I in Diagnostic Medical Ultrasound.

This clinical practicum introduces students to Diagnostic Medical Ultrasound. Within the Diagnostic Imaging Department, students will develop a knowledge of departmental procedures, an ability to interpret and utilize requisitions and demonstrate proficiency in equipment selection and instrumentation. Students will develop clinical skills in performing abdominal and pelvic ultrasound examinations. Students will apply health professional practice skills when interacting with patients and healthcare professionals.

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound.

DMUT 1010.03: Principles and Instrumentation of Diagnostic Medical Ultrasound I.

This course provides the student with the basic knowledge of the physical principles of ultrasound. It examines how diagnostic ultrasound works (how it is generated and how it interacts with tissues). Also covered in this course is the instrumentation used to transmit, receive and present echo information and the application of these to the practice of Diagnostic Medical Ultrasound.

FORMAT: Lecture 3 hours

Prerequisites: PHYC 1300X/Y 06

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound.

DMUT 1020.03: Fundamentals of Sonography II.

This course provides a general overview of the normal sonoanatomic appearance of organs and structures of the abdominopelvic cavity which are fundamental to sonography. Where applicable, the sonoanatomic application and normal variants of specific organs and structures within the abdominopelvic cavity are also discussed. Included are reference charts highlighting other common diagnostic tests, normal measurements, and laboratory values associated with each organ and structure of interest.

FORMAT: Lecture 3 hours, lab 3 hours

Prerequisites: DMUT 1000.03

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound.

DMUT 1500.03: Clinical Practicum I in Diagnostic Medical Ultrasound.

This clinical practicum introduces students to Diagnostic Medical Ultrasound. Within the Diagnostic Imaging Department, students will develop a knowledge of departmental procedures, an ability to interpret and utilize requisitions and demonstrate proficiency in equipment selection and instrumentation. Students will develop clinical skills in performing abdominal and pelvic ultrasound examinations. Students will apply health professional practice skills when interacting with patients and healthcare professionals.

FORMAT: Lecture 3 hours, lab 3 hours

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound.

DMUT 2000.03: Sonography of the Abdomen/ Superficial Structures I.

This is the first of three courses related to abdominal and superficial structures. This course will focus on the sonoanatomic application and normal variants of organs and structures of the abdominopelvic cavity which are fundamental to sonography. It includes sonoanatomic application and normal variants of organs and structures of the abdominopelvic cavity which are fundamental to sonography.

FORMAT: Lecture 2 hours, lab 3 hours

Prerequisites: DMUT 1000.03

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound.

DMUT 1010.03: Principles and Instrumentation of Diagnostic Medical Ultrasound I.

This course provides the student with the basic knowledge of the physical principles of ultrasound. It examines how diagnostic ultrasound works (how it is generated and how it interacts with tissues). Also covered in this course is the instrumentation used to transmit, receive and present echo information and the application of these to the practice of Diagnostic Medical Ultrasound.

FORMAT: Lecture 3 hours

Prerequisites: PHYC 1300X/Y 06

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound.
DMUT 2020.03: Principles and Instrumentation of Diagnostic Medical Ultrasound II.
This course builds on knowledge and experience gained in DMUT 1010. It provides the student with principles and instrumentation of continuous-wave pulsed-wave Doppler spectral analysis and color-flow imaging. Imaging artifacts, quality assurance, and biocompatibility are investigated thoroughly. Application of this knowledge and the development of skills and competence needed in the clinical practice of Diagnostic Medical Ultrasound will be included in this course.
FORM: Lecture 3 hours
PREREQUISITE: DMUT 1500.03, HSCE 2010.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound
DMUT 2030.03: Sonography of the Abdomen and Superficial Structures II.
This is the second of three courses related to Abdomen and Superficial Structures. The course will focus on the pathology of the pancreas, adrenal, retroperitoneum, lymphatic system, urinary tract, thyroid and parathyroid glands. Ectopic pregnancy, laboratory testing, sonoanscriptive presentation, differential diagnosis and treatment modalities related to these body systems will be examined. Students will be challenged to analyze, formulate, sonographic scanning strategies, and diagnose appropriately relevant pathology viewed in a hospital clinical environment. The course will provide students with the opportunity to integrate skills and concepts learned in previous courses and continue development of professional skills in Diagnostic Medical Ultrasound.
FORM: Lecture 3 hours, lab 3 hours
PREREQUISITE: DMUT 2500.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound
DMUT 2040.03: Sonography in Obstetrics I.
This course provides the learner with a comprehensive study of normal and abnormal first trimester and normal second trimester obstetric ultrasound examinations. Critical evaluation of first trimester pregnancy complications and the sonoanscriptive appearance in second trimester obstetrical patient essential to contemporary study in DMUT 3000. Ultrasound identification, safety and assisted reproductive technologies are also explored in detail. The study of embryology is an important component to focus on sonoanscriptive appearance associated with the growing fetus. Ethical issues related to obstetrical ultrasound will be examined and discussed.
FORM: Lecture 3 hours
RESTRICTION: HOLD Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound
DMUT 2500.03: Clinical Practicum II in Diagnostic Medical Ultrasound.
Practicum II provides students with the opportunity to continue skill development in abdominal and pelvic ultrasound examinations including the recognition, identification and documentation of abnormalities. In addition, students will develop clinical skills in performance and second trimester obstetrical ultrasound examinations. This clinical practicum requires the student to travel to clinical sites outside the Halton Regional Municipality. Students will be responsible for travel and accommodation arrangements.
FORM: Full-time rotations in clinical settings
PREREQUISITE: DMUT 2010.03, 2020.03, 2030.03, HSCE 2400.03, DMUT 2400.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound
DMUT 3000.03: Sonography in Obstetrics II.
This course provides a comprehensive study of the normal and abnormal second and third trimester ultrasound examinations. Critical evaluation of fetal pathology and sonoanscriptive characteristics associated with these pathologies will be fully explored. Maternal complications associated with pregnancy and anesthetic training will also be covered.
FORM: Lecture 3 hours, lab 3 hours
PREREQUISITE: DMUT 2500.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound
DMUT 3010.03: Sonography of Abdomen and Superficial Structures III.
The third and final course DMUT 3010, Abdominal and Superficial Structures III, focuses on abdominal and pelvic ultrasound examinations including the recognition, identity and sonoanscriptive characteristics of the male reproductive system, nonanatmic adrenal, common bile duct, mesocolic, blood vascular channel and lower extremity common ultrasound. This course will prepare the student for a more advanced level of study and clinical practice in ultrasound interventional biopsy, instrumental techniques and procedures. An integration of previously acquired knowledge and clinical skills will be applied to a more advanced level of theoretical and clinical application using Doppler ultrasound technology.
FORM: Lecture 3 hours, lab 2 hours
PREREQUISITE: DMUT 2500.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound
DMUT 3200.03: Abdominal Imaging.
This clinical education course allows the student to integrate and consolidate knowledge, concepts and skills developed and maintained from previous courses. The expectation is that the student will be able to recognize, identify and document normal and abnormal sonoanscriptive images of the abdomen under indirect supervision. This experience will enhance the student’s ability to make independent decisions and to critically evaluate images of abdominal organs and related structures. Students are expected to assume responsibility for their actions and decisions. Students are expected to interact effectively with patients and all healthcare team professionals while maintaining acceptable professional practice standards in an ultrasound environment.
FORM: Full-time rotations in clinical settings
PREREQUISITE: DMUT 3000.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound
DMUT 3210.03: Obstetrical Imaging.
Building on experience developed in Clinical Practicum II and knowledge and concepts learned in Sonography in Obstetrics I and II, this obstetrical ultrasound clinical education course enhances the student’s ability to recognize, identify and document normal and abnormal obstetrical ultrasound examinations. This course provides the opportunity to reflect on their own clinical and professional skills in dealing with the obstetrical patient. Assuming responsibility for their actions and decisions in the clinical setting, the student becomes competent in performing obstetrical sonoanscriptive examinations.
FORM: Full-time rotations in clinical setting
PREREQUISITE: DMUT 3000.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound
DMUT 3220.03: Gynecological Imaging.
This clinical course allows the student to integrate knowledge, concepts and skills developed and maintained from previous courses. The expectation is for the student to achieve competency in recognizing, identifying, and documenting normal and abnormal sonoanscriptive images of the female pelvis under indirect supervision. The student will be expected to reflect on their own skills and assume responsibility for their actions and decisions in the clinical setting.
FORM: Full-time rotations in clinical setting
PREREQUISITE: DMUT 2500.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound
DMUT 3230.03: Superficial Structure Imaging.
This clinical education course allows the student to integrate knowledge, concepts and skills developed and maintained from previous courses. The expectation is that the student will be able to recognize, identify and document normal and abnormal sonoanscriptive images of superficial structures under indirect supervision. This clinical experience will enhance the student’s ability to make independent decisions and to critically evaluate images of superficial structures. Students are expected to assume responsibility for their actions and decisions. Students are expected to interact effectively with patients and all healthcare team professionals while maintaining acceptable professional practice standards in an ultrasound environment.
FORM: Full-time rotations in clinical settings
PREREQUISITE: DMUT 3000.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound
DMUT 3240.03: Application of Ultrasound Instrumentation.
This clinical education course further expands the student's ability to analyze and process data. Integrating knowledge, concepts and skills developed in previous courses, the student will enhance their independent decision making skills. The expectation is for the student to achieve competency in their utilization of ultrasound instrumentation in a variety of ultrasound examinations. The student will be expected to reflect on their own skills in their application to theory.

FORMAT: Full-time rotations in clinical settings
PREREQUISITE: DMUT 2010.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound.

DMUT 3500.03: Clinical Practicum III in Diagnostic Medical Ultrasound.
Clinical Practicum III provides students with the clinical exposure to various specialties which include: related imaging modalities, vascular technology, echocardiography and total assessment ( Doppler, amniocentesis etc.). This clinical practicum will provide the student with the opportunity to correlate ultrasound imaging with other imaging specialties. This clinical practicum also allows the student to gain clinical exposure to specialty practice areas which may choose to pursue in the fourth year.

FORMAT: Full-time rotations in clinical settings
PREREQUISITE: Completion of all other third year DMUT courses
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound

DMUT 4000.12/4100.06: Specialty Practice I/Specialty Practice II.
Specialty practice affords students the opportunity to attain additional competence and knowledge in a specialty practice area. There are three components to specialty practice: clinical, contractual and theoretical. This course can be six or twelve credit hours depending on the nature of the specialty practice. Specialty practice is arranged through consultation with the fourth year/ post diploma advisor.

PREREQUISITE: DMUT 3500.03 for entry level students; Post diploma students must consult with the post diploma advisor to ensure the necessary preparation has been met.
RESTRICTION: Restricted to Bachelor of Health Science students in DMUT.
Enrollment may be limited due to clinical site availability.

DMUT 4010.03: Vascular Ultrasonography.
This course builds on knowledge and experience gained in DMUT 2020 (Principles and Instrumentation of Diagnostic Medical Ultrasound II) and DMUT 3010 (Sonography of the Abdomen/ Superficial Structures III). The student will review hemodynamics, physiology and instrumentation, spectral analysis, color flow imaging and the use of contrast agents in vascular sonography. Applications in vascular sonography and technology to include: examinations of the cerebral vessels, arteries and veins of the extremities and abdominal vessels will be covered.

FORMAT: Online delivery via BLS
PREREQUISITE: DMUT 3500.03
RESTRICTION: Restricted to Bachelor of Health Sciences students in the professional stream of Diagnostic Medical Ultrasound. Post diploma students by permission of instructor.

DMUT 4020.03: Cardiac Ultrasound.
This course builds on knowledge and experience gained in DMUT 2020 (Principles and Instrumentation of Diagnostic Medical Ultrasound II) and HSCE 2040 (Pathophysiology for Health Sciences). This course provides a comprehensive study of the normal and abnormal cardiac ultrasound examinations. The student will review anatomy and physiology and hemodynamics of the heart and relate theory to echocardiography. Normal principles of cardiac ultrasound, normal echocardiography examination techniques and standard views will be covered including: two-dimensional, M-mode and Doppler. Clinical indications for echocardiography examinations will be covered as well as congenital and acquired cardiac disease processes evaluated with echocardiography.

FORMAT: Online delivery via BLS
PREREQUISITE: DMUT 3500.03
RESTRICTION: Restricted to Bachelor of Health Sciences students in the professional stream of Diagnostic Medical Ultrasound. Post diploma students by permission of instructor.

HSCE 1000.03: Foundations of Health Care Practice.
This course introduces students to the basic BHSc professional to the Canadian Health Care System and the role of the health professional within that system. The course compares the Canadian health care systems with other countries and covers diverse healthcare models such as primary care, palliative care, long term care, etc. The role of the health professional is explored through the study of professionalism, scope of practice, and risk management in an interprofessional context. The course will allow students the opportunity to develop/improve essential skills to help them study and work in a multi-disciplinary system including critical thinking, writing skills, communication and teamwork.

FORMAT: Lecture 3 hours
RESTRICTION: Restricted to Bachelor of Health Science students or by permission of instructor

HSCE 1010.03: Clinical Skills for Health Sciences.
This course will further the students' understanding of working within a healthcare environment as they learn the skills required to provide patient-centered care. The course provides academic knowledge and laboratory experiences for students to develop clinical skills essential in all five professional streams of the BHSc program.

FORMAT: Lecture 1 hours, laboratory 1.5 hours
PREREQUISITE: HSCE 1000.03 and one discipline specific course RESTRICTION: Restricted to Bachelor of Health Science students.

HSCE 1020.03: Human Anatomy and Physiology I.
This course, which is along with HSCE 1030 is designed to provide the student with an understanding of the cellular, organ, and system levels of organization of the human body. It includes a comprehensive study of topics pertaining to the covering, support and movement of the human body. Topics covered will include: organization of the body, the integumentary, skeletal and muscular systems.

FORMAT: Lecture 1 hours
PREREQUISITE: HSCE 1010.03
EXCLUSION: ANAT 1000.03, ANAT 1020.03, PHYS 1000.06, PHYS 1010.06
RESTRICTION: None, however priority is given to Health Science students.

HSCE 1030.03: Human Anatomy and Physiology II.
This course studies the systems that serve in maintaining the human body and ensuring its continuity. Topics covered will include: cardiovascular, immune, respiratory, digestive, urinary and reproductive systems. This course will provide students with an appreciation of the complexities of the human function and form, and set the stage for understanding the integration of organ system functions.

FORMAT: Lecture 1 hours
PREREQUISITE: HSCE 1020.03
EXCLUSION: ANAT 1000.03, ANAT 1020.03, PHYS 1000.06, PHYS 1010.06
RESTRICTION: None, however priority is given to Health Science students.

HSCE 2000.03: Health Care Ethics.
This is an introductory course in healthcare ethics. Students will be provided with an overview of moral theory and principles, a chance to reflect upon and discuss contemporary ethical issues in healthcare, and an opportunity to acquire the conceptual and practical tools required to make competent ethical decisions in their own practice. Teaching methods will include lecture, group instruction and case analysis.

FORMAT: Lecture 3 hours
RESTRICTION: None, however priority is given to Health Science students.

HSCE 2010.03: Digital Imaging.
This course provides an overview of computer basics, digital file structure, digital imaging principles and their applications in radiological technology, magnetic resonance imaging, nuclear medicine technology, and diagnostic medical ultrasound. The principles of image distribution by Teleradiology and Picture Archiving Communication Systems are also provided. The course operates as a distance education course using BLS, with materials being distributed via the Internet. Tutorial sessions are scheduled throughout the term.

FORMAT: Online delivery via BLS
PREREQUISITE: RADT 1000.03 or NUMT 1020.03 or DMUT 1010.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Diagnostic Medical Ultrasound.

HSCE 2020.03: Radiation Physics.
The purpose of this course is to build on the basic principles of the science of radiations physics with a focus on the concepts that directly apply to the medical radiation fields of nuclear medicine technology and radiological technology. Topics of study include atomic physics, radiometric and cinematographic radiation. The course will explain radiation interaction with matter in relation to the absorption and scatter of x-rays and gamma rays.
HSCE 2040.03: Pathophysiology for Health Sciences.

This course provides a theoretical overview of the biophysical basis of disease. The knowledge is linked to radiation physics principles as applied to the practice of medical radiation. Current regulatory issues that are impacting the safety of facilities and equipment will be examined. Emphasis will be placed on practical means of radiation protection for the technologist, the patient and the general public.

FORMAT: Lecture 3 hours

PREREQUISITE: HSCE 2020.03

RESTRICTION: None, however priority is given to the Health Sciences students

HSCE 3000.03: Culture, Diversity and Health.

Community development, community advocacy, social justice and primary healthcare will be the theoretical frameworks for exploring the Health Sciences practitioners' role and practice in the context of working with populations in high risk environments. The emphasis is on understanding the issues, collaborating with those involved, and building individual and group capacities to enhance and promote the health and well-being of specific populations.

FORMAT: Online delivery via BLS

RESTRICTION: None, however priority is given to the Health Sciences students

HSCE 3010.03: Introduction to Health Research.

HSCE 3010 is designed to help students make sense of the research they can be expected to encounter in their professional practice. By focusing on the role of research in contemporary health professional practice this course will provide the student with a sound basis in the principles and methods of research, data collection, data analysis and communication skills.

FORMAT: Online delivery via BLS

EXCLUSION: HA3P 3000.05

RESTRICTION: None, however priority is given to the Health Sciences students

HSCE 3600.01: Clinical Elective.

This clinical elective is available for visiting students only, in the health professional streams of Diagnostic Medical Ultrasound, diagnostic cytology, nuclear medicine technology, radiological technology, or respiratory therapy. Contact department for details.

HSCE 4030.03: Leadership in Health Care.

This course will consider various elements of leadership in a complex, multi-professional and rapidly changing healthcare system, and will enable students to assess and strengthen their own leadership style. An understanding of current trends and issues in healthcare will provide a basis for the development of leadership skills. Critical thinking, decision-making processes and other leadership behaviours will be examined.

FORMAT: Online delivery via BLS

RESTRICTION: None, however priority is given to the Health Sciences students

HSCE 4040.03: Independent Study.

The student will carry out an independent study or complete a project related to health science. Fulfillment of this requirement is by faculty or course supervisor and is dependent upon the nature of the course of study. Students wishing to pursue HSCE 4040.03 must consult with the fourth year post-diploma advisor for approval a minimum of three months prior to the beginning of the term in which they hope to enrol in the course.

This course may not be offered every year and will be contingent upon the availability of faculty.

HSCE 4041.03: Independent Study.

The student will carry out an independent study or complete a project related to health science. Fulfillment of this requirement is by faculty or course supervisor and is dependent upon the nature of the course of study. Students wishing to pursue HSCE 4041.03 must consult with the fourth year / post diploma advisor for approval a minimum of three months prior to the beginning of the term in which they hope to enrol in the course.

This course may not be offered every year and will be contingent upon the availability of faculty.

HSCE 4200.03: Foundations in Clinical & Professional Education.

Using an adult education theoretical perspective, this course introduces students to elements of program design, objective-setting, selection of instructional methods and assessment strategies for application to their roles as preceptors, student educators, and lifelong learners. This course will discuss a variety of teaching, learning and delivery methods as well as their appropriateness to clinical and professional education.

FORMAT: Online delivery via BLS

RESTRICTION: Restricted to students within the Faculty of Health Professions

HSCE 4220.03: Critical Research Appraisal and Practices.

This course is designed to give students and practicing professionals the opportunity to further develop and practice those skills essential to the competent translation of knowledge into clinical practice. Through evaluation and use of evidence-informed decision making and change management processes students will be prepared to assist their future workplaces in staying at the forefront of clinical practice.

FORMAT: On-line delivery via BLS

PREREQUISITE: HSCE 4210 or equivalent

RESTRICTION: None, however priority is given to the Health Sciences students

MDLT 4000.12: 4100.06: Specialty Practice I.

Specialty practice provides students with learning experiences at a level not previously available and affords the opportunity to attain additional competence and knowledge in a specialty practice area. This course includes leadership, development of clinical competence, and the opportunity to further develop and practice those skills essential to the competent translation of knowledge into clinical practice. Through evaluation and use of evidence-informed decision making and change management processes students will be prepared to assist their future workplaces in staying at the forefront of clinical practice.

FORMAT: Online delivery via BLS

PREREQUISITE: HSCE 4100.03 or equivalent

RESTRICTION: None, however priority is given to the Health Sciences students

MRIT 4100.03: MRI Physics.

The physical principles involved with Magnetic Resonance Imaging (MRI) are introduced. The course covers topics such as basic principles, image sculpting and contrast, image acquisition and reconstruction, data collection and image formation, and a detailed study of MRI pulse sequences.

FORMAT: On-line delivery via BLS

RESTRICTION: Restricted to 3rd and 4th year BScDMUT, NUMT or RADT students

PREREQUISITE: HA3P 3000.05

RESTRICTION: Restricted to BScDMUT students, MDLS; Enrollment may be limited due to clinical site availability.

MRIT 4110.03: Advanced MRI Physics.

Advanced MRI Physics builds on the foundations established in MRIT 4100. This course includes a comprehensive study of the artifacts encountered in magnetic resonance imaging as well as flow phenomena. The physics behind advanced imaging techniques are presented including: vascular, cardiac, functional, diffusion, perfusion, spectroscopy, interventional and breast MRI. Image post processing techniques are also introduced.

FORMAT: On-line delivery via BLS

RESTRICTION: Restricted to 4th year BScDMUT, NUMT or RADT students.
MRIT 4120.3: MRI Instrumentation, Safety and Contrast Media.
MRI Instrumentation, Safety and Contrast Media presents instrumentation and equipment, MRI technology, quality control methods, patient monitoring, site planning for new MRI sites and site developments in MRI technology. This course will focus on the study of MRI safety as well as composition, safety and application of MRI contrast media in current practice.
FORMAT: On-line delivery via BLS
PREREQUISITE: MRIT 4100.03
RESTRICTION: Restricted to 3rd and 4th year BHSC DMUT, NUMT or RADT students.

MRIT 4130.3: MRI Techniques and Applications.
MRI Techniques and Applications expands on the physics and theory of MRI introduced in MRIT 4100.03 and introduces students to the practice of MRI scanning. Positioning techniques, coil selection, pulse sequences, protocol development, anatomy, pathology, and artifacts imaged with MRI will be discussed to prepare students for clinical practice.
FORMAT: On-line delivery via BLS
PREREQUISITE: MRIT 4100.03
RESTRICTION: Restricted to 3rd and 4th year BHSC DMUT, NUMT and RADT students.

NUMT 1000.03: Fundamentals of Nuclear Medicine.
This course is designed to provide the students with an introduction to nuclear medicine technology by exploring how radiation and detection equipment are used to perform clinical procedures. The course is divided into sections with each section containing content which builds on the previous concepts. Concepts covered include: detectors used in measuring radiation, semiconductors and semiconductor detectors with a focus on the gamma camera - components, acquisition techniques, SPECT reconstruction and quality control.
FORMAT: Lecture 3 hours, lab 2 hours
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology.

NUMT 1010.03: Nuclear Medicine Instrumentation I.
This course is designed to expand on the learner's knowledge of gamma cameras instrumentation acquired in NUMT 1000.03. Image acquisition, processing and quantitative image analysis will be explored in detail. Special emphasis will be placed on theory, clinical applications, quality control of Single Photon Emission Computed Tomography (SPECT) as it relates to nuclear medicine practice. Opportunity to apply and expand on the theory will be provided through laboratory and self-directed learning sessions. In addition students will cover the concept of quality assurance and gain the ability to design and critique a Nuclear Medicine Quality Assurance program.
FORMAT: Lecture 3 hours, lab 3 hours. Online delivery via BLS (some content and supplemental material)
PREREQUISITE: NUMT 1000.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology.

NUMT 1020.03: Nuclear Medicine Clinical Procedures I.
In this course the student will learn the Nuclear Medicine procedures that involve the use of radiopharmaceuticals in the investigation of the function of organs in the endocrine and cardiovascular systems. Image interpretation, radiopharmaceutical distribution, computer analysis, related procedures and procedural troubleshooting will be covered. Clinical lab sessions will enable students to observe and practice these skills.
FORMAT: Lecture 3 hours, clinical 6 hours, tutorial 1.5 hours
PREREQUISITE: NUMT 1000.03, NUMT 1010.03, and HSCE 1020.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology.

NUMT 1030.03: Nuclear Medicine Instrumentation II.
This course is designed to provide the students with an introduction to nuclear medicine technology by exploring how radiation and detection equipment are used to perform clinical procedures. The course is divided into sections with each section containing content which builds on the previous concepts. Concepts covered include: detectors used in measuring radiation, semiconductors and semiconductor detectors with a focus on the gamma camera - components, acquisition techniques, SPECT reconstruction and quality control.
FORMAT: Lecture 3 hours, lab 2 hours
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology.

NUMT 1040.03: Nuclear Medicine Clinical Procedures II.
In this course the student will learn the Nuclear Medicine procedures that involve the use of radiopharmaceuticals in the investigation of the function of organs in the endocrine and cardiovascular systems. Image interpretation, radiopharmaceutical distribution, computer analysis, related procedures and procedural troubleshooting will be covered. Clinical lab sessions will enable students to observe and practice these skills.
FORMAT: Lecture 3 hours, clinical 6 hours, tutorial 1.5 hours
PREREQUISITE: NUMT 1000.03, NUMT 1010.03, and HSCE 1020.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology.

NUMT 2000.03: Radiopharmacy.
This course encompasses all aspects of radiopharmaceutical preparation utilized in a nuclear medicine facility. Classification of radiopharmaceuticals, the production of nuclides, generator construction and elution, labeling methods and pharmacological standards are covered in detail. Emphasis is placed on preparing, assaying, dispensing, calculating, safe handling and storing of radiopharmaceuticals. A comprehensive quality assurance program is presented, as well as licensing and record keeping.
FORMAT: Lecture 3 hours, lab 2 hours
PREREQUISITE: NUMT 1000.03, NUMT 1010.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology.

NUMT 2010.03: Nuclear Medicine Clinical Procedures III.
This course provides students with the knowledge and skills to perform Nuclear Medicine procedures in the central nervous, respiratory and gastrointestinal systems. Image critique and interpretation, radiopharmaceutical distribution, computer analysis, related procedures and procedural troubleshooting will be covered. Clinical lab sessions will enable students to observe and practice these skills.
FORMAT: Lecture 3 hours, clinical 6 hours, tutorial 1.5 hours
PREREQUISITE: NUMT 1000.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology.

NUMT 2020.03: Nuclear Medicine Clinical Procedures III.
This course provides students with the knowledge and skills to perform Nuclear Medicine procedures in the central nervous, respiratory and gastrointestinal systems. Image critique and interpretation, radiopharmaceutical distribution, computer analysis, related procedures and procedural troubleshooting will be covered. Clinical lab sessions will enable students to observe and practice these skills.
FORMAT: Lecture 3 hours, clinical 6 hours, tutorial 1.5 hours
PREREQUISITE: NUMT 1000.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology.

NUMT 2030.03: Positron Emission Tomography.
The course provides students with introduction to Positron Emission Tomography (PET), scanner physics, instrumentation, and quality control. Students will also explore cyclotron physics and radiopharmaceutical synthesis in the clinic. A section of the course content involves the use of various PET radiopharmaceuticals in clinical imaging, presented in the larger context of current PET clinical procedures. Clinical application of fusion imaging with PET/CT will also be covered.
FORMAT: On-line delivery through BLS, in weekly tutorials
PREREQUISITE: NUMT 2000.03, 2020.03
RESTRICTION: REstricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology.

NUMT 3020.03: CT Scan Technologists.
The course provides students with advanced knowledge of Computed Tomography (CT) scanner physics, instrumentation, and quality control. Students will also explore contrast media and CT technology, and the role of CT in hybrid technologies. Opportunity to apply and expand upon the knowledge gained through lectures will be provided through clinical experience and self-directed learning sessions.
PREREQUISITE: NUMT 2500.03
RESTRICTION: Restricted to students enrolled in the Bachelor of Health Science Program in the professional stream of Nuclear Medicine Technology.
NUMT 3200.03: Radiopharmacy.

Students will be exposed to the daily operation of a central radiopharmacy. Generator elution, product preparation and performance of quality control procedures, including solutions, and radiopharmacy research and development. Quality Control procedures, evaluation and trouble-shooting techniques will be utilized to optimize efficiency and validate results.

FORMAT: Clinical Education Course
PREREQUISITE: NUMT 2500

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology

NUMT 3210.03: Non-Imaging Procedures.

This clinical course will allow students to apply theory to clinical practice by performing a variety of non-imaging Nuclear Medicine procedures to include: white blood cell labelling; 14C urea breath tests, and radiosynthetic therapeutic procedures, including ablations. Proper lab technique will be emphasized. Students will be able to assess, modify and apply instrumentation applications for each procedure performed. Quality Control procedures, evaluation and trouble-shooting techniques will be utilized to optimize efficiency and validate results.

FORMAT: Clinical Education Course
PREREQUISITE: NUMT 2500

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology

NUMT 3220.03: General Imaging I.

Students will apply theory to clinical practice by performing a variety of procedures. Emphasis will be on the application and evaluation of nuclear medicine general imaging procedures as they relate to the diagnosis and management of patients. Students will be assessed and required to obtain a minimum number of general imaging clinical competencies. Students will be able to assess, modify and apply instrumentation applications for each procedure performed. Quality control procedures, evaluation and troubleshooting techniques will be utilized to optimize efficiency and validate results.

FORMAT: Clinical Education Course
PREREQUISITE: NUMT 2500

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology

NUMT 3222.03: General Imaging II.

Students will apply theory to clinical practice by performing a variety of procedures. Emphasis will be on the application and evaluation of nuclear medicine general imaging procedures as they relate to the diagnosis and management of patients. Students will be assessed and required to obtain a minimum number of general imaging clinical competencies beyond those obtained in General Imaging I. Students will be able to assess, modify and apply instrumentation applications for each procedure performed. Quality control procedures, evaluation and troubleshooting techniques will be utilized to optimize efficiency and validate results.

FORMAT: Clinical Education Course
PREREQUISITE: NUMT 2500

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology

NUMT 3230.03: Cardiac Imaging.

Students will apply theory to clinical practice by performing procedures involving the cardiovascular system. Application and evaluation of acquisition and processing of nuclear cardiac images with a focus on stress imaging (stressful and medication induced) and wall motion imaging will be emphasized. Students will be able to assess, modify and apply instrumentation applications for each procedure performed. Quality Control procedures, evaluation and troubleshooting techniques will be utilized to optimize efficiency and validate results.

FORMAT: Clinical Education Course
PREREQUISITE: NUMT 2500

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology

NUMT 3240.03: Pediatric Imaging.

Students will focus on nuclear medicine practice in the care of children and their families. Application and evaluation of nuclear medicine procedures relevant to the diagnosis and management of children will be emphasized. Students will be able to assess, modify and apply instrumentation applications for each procedure performed. Quality Control procedures, evaluation and trouble-shooting techniques will be utilized to optimize efficiency and validate results.

FORMAT: Clinical Education Course
PREREQUISITE: NUMT 3500

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology

NUMT 3500.03: Clinical Practicum In Nuclear Medicine Technology III.

Clinical Practicum III is intended to consolidate nuclear medicine theory and practice covered by the end of year three. The students will be provided the opportunity to demonstrate competency in nuclear medicine practice, integrating aspects of all discipline and health science related course theory. This course allows students to expand their knowledge of the healthcare team by providing an opportunity for them to observe and experience healthcare services provided by other professionals.

FORMAT: Full-time rotations in clinical settings
PREQUISITE: NUMT 3200.03, 3222.03 3230.03, 3240.03

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology

NUMT 4100.06: Specialty Practice I/Specialty Practice II.

Numerous practice affords students the opportunity to attain additional competence and knowledge in a specialty practice area. There are three components to specialty practice: clinical, contextual and theoretical. Specialty Practice I is arranged through consultation with the fourth year post-diploma advisor. PREREQUISITE: NUMT 3500.03 for entry level students. Post diploma students must consult with the post diploma advisor to ensure the necessary pre-requisites have been met.

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology. Enrolment may be limited due to clinical site availability.

NUMT 4210.03: Professional Practice in Nuclear Medicine Technology I.

This clinical education course provides the student with the opportunity to assume clinical responsibility and develop leadership skills through two processes. Students will apply professional skills acquired through previous courses to function as a member of the diagnostic team and perform duties associated with a team leader role. Also, through a mentoring program, students will act as role models and support first year nuclear medicine students in an effort to further develop leadership skills.

NOTE: Students cannot be registered in NUMT 4210.03 and 4220.03 concurrently.

FORMAT: Clinical Education Course
PREREQUISITE: NUMT 4200.03

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology

NUMT 4220.03: Professional Practice in Nuclear Medicine Technology II.

This clinical education course provides the student with the opportunity to assume clinical responsibility and to continue development of professional skills in nuclear medicine technology. Students will be scheduled to a variety of imaging areas where they will be responsible, with remote supervision, for functioning as an integral member of the nuclear medicine team. This course also provides the opportunity for students to become actively involved in the education of patients, as well as in the continuing education of both practicing nuclear medicine technologists and affiliated healthcare groups.

NOTE: Students cannot be registered in NUMT 4210.03 and 4220.03 concurrently.

FORMAT: Clinical Education Course
PREREQUISITE: NUMT 3500.03

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Nuclear Medicine Technology

RADT 1000.03: Skeletal Radiography.

This course provides the student with the knowledge required to perform basic skeletal radiography examinations. Aspects studied include: patient positioning, alignment of the radiation field, and radiation exposure factors. Radiographic images are analyzed with a focus on structures demonstrated, evaluation criteria, and modifications required to improve sub-optimal images. Students have the
ability to develop radiographic skills for positioning and image analysis in lab, tutorial sessions.

**RADT 1010.03: Imaging Fundamentals.**

This course offers an introduction to the processes involved in the production of x-ray images and the factors that influence image quality. Students have the opportunity to use imaging equipment during lab sessions.

**RADT 1020.03: Skeletal and Systems Radiography.**

Skeletal and Systems Radiography provides the student with the knowledge required to perform radiological imaging procedures of the vertebral column, craniofacial structures, and the extremities. This knowledge is applied during lab sessions. Students have the opportunity to develop skills in the use of radiological imaging equipment.

**RADT 1500.03: Clinical Practicum I in Radiological Technology.**

This clinical practicum introduces students to the field of radiology and provides them with the opportunity to experience the clinical work environment. The course is offered in the professional stream of Radiological Technology.

**RADT 2000.03: Advanced Skeletal Systems Radiography.**

This course covers the use of advanced skeletal examination methods and provides students with the opportunity to develop their skills in radiographic positioning and the interpretation of radiographic images.

**RADT 2010.03: Imaging Equipment.**

This course covers the structure, operating principles, and quality control of the imaging equipment used in radiology. It includes a comprehensive study of x-ray generation, tubes, fluoroscopy, and processing equipment. The student will develop an understanding of the principles and applications of imaging equipment in radiological technology.

**RADT 2500.03: Clinical Practicum II in Radiological Technology.**

This clinical practicum provides students with the opportunity to develop skills in clinical procedures and patient care. The course is offered in the professional stream of Radiological Technology.

**RADT 3000.03: Applied Pathology in Radiological Technology.**

This course provides students with the knowledge and skills required to interpret radiographic images and to develop an understanding of the diseases that can be diagnosed through radiography. The course is offered in the professional stream of Radiological Technology.

**RADT 3100.03: Speciality Practice Concepts.**

This speciality practice concepts course provides students with the knowledge and skills required to practice in radiology as a radiographer. The course is offered in the professional stream of Radiological Technology.

**RADT 3200.03: Gastrointestinal/Genitourinary/Operating Room Imaging.**

This course provides students with the knowledge and skills required to perform imaging procedures in the gastrointestinal, genitourinary, and operating room environments. The course is offered in the professional stream of Radiological Technology.
acquired knowledge and skills to radiological procedures. The students will develop their skills in performing a high standard of patient care, producing and evaluating images, problem solving and collaboration.

FORMAT: Clinical Education Course
PREREQUISITE: RADT 2500.03, RADT 3000.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Radiological Technology

RADT 3240.06: General/Adaptation Radiography.

This course provides students with the opportunity to further develop general radiography skills. Under appropriate direction from a preceptor, students will apply the knowledge and skills acquired in previous courses/practica and adapt routine imaging procedures for challenging clinical situations and patients with special needs. Students will be scheduled to a variety of imaging areas where radiographic adaptions are typically required: emergency, in-patient/in-hospital procedures, on-call experience on evening, night, and weekend shifts is provided in this course.

FORMAT: Clinical education course
PREREQUISITE: RADT 2500.03, RADT 3000.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Radiological Technology

RADT 3500.03: Clinical Practicum III.

Clinical Practicum III provides students with the opportunity to integrate skills and concepts from previous courses, clinical practice and the clinical education courses. Under appropriate levels of supervision, the student will assume the responsibilities of a radiological technologist and demonstrate competency in radiography and computed tomography. This practicum takes place at a Diagnostic Imaging Department outside the QEII Health Sciences Centre. This course can be six to twelve credit hours depending on the nature of the specialty practice. Specialty practice is arranged through consultation with the fourth year/post diploma advisor.

PREREQUISITE: RADT 3500.03 for entry level students; Post diploma students may consult with the preceptor.

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Radiological Technology

RADT 4000.12/4100.06: Specialty Practice I/Specialty Practice II.

Specialty practice affords students the opportunity to attain additional competence and knowledge in a specialty practice area. There are three components to specialty practice: clinical, contextual and theoretical. This course can be six to twelve credit hours depending on the nature of the specialty practice. Specialty practice is arranged through consultation with the fourth year/post diploma advisor.

PREREQUISITE: RADT 3500.03 for entry level students; Post diploma students may consult with the preceptor.

RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Radiological Technology

RADT 4200.03: Professional Practice in Radiological Technology.

This clinical education course provides the student with the opportunity to strengthen radiological technology skills while increasing confidence and independence in clinical practice. Under appropriate direction from a preceptor, students will apply the knowledge and skills acquired in previous courses/practica to further develop clinical judgement and self-confidence. To demonstrate competence, students must successfully complete a summative clinical assessment and comprehensive competency based written examination. Students will also plan, design, and deliver a professional development session/activity for students of their radiological background.

FORMAT: Clinical Education Course
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Radiological Technology

RSPT 1000.03: Respiratory Therapy Instrumentation and Techniques.

This course provides the student with the fundamental knowledge required to understand the physical principles and concepts necessary for the safe and efficient delivery of physician prescribed therapy. Clinical skills competency through lab simulation is required.

FORMAT: Lecture 3 hours, lab 3 hours
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Respiratory Therapy

RSPT 1020.03: Respiratory Therapy Clinical Assessment and Techniques.

This course prepares students for a career in respiratory therapy by developing a thorough understanding of normal and abnormal cardiopulmonary function in the human body and is considered a foundation course for RSPT specific courses in the program. Lecture 4.5 hours; individual and group work with case studies
PREREQUISITE: RSPT 1000.03, HSCE 1025.03, CHEM 1410.03
CO-REQUISITE: BIOC 1420.03

RSPT 1030.03: Cardiopulmonary Physiology I.

This course presents a modular approach to developing a thorough understanding of normal and abnormal cardiopulmonary function in the human body and is considered a foundation course for RSPT specific courses in the program. Lecture 4.5 hours; individual and group work with case studies
PREREQUISITE: RSPT 1000.03, HSCE 1025.03, CHEM 1410.03
CO-REQUISITE: BIOC 1420.03

RSPT 1500.03: Clinical Practicum I.

Clinical Practicum I introduces students to clinical practice in the patient care (hospital) environment. Students will have the opportunity to apply theory to skills practice at the defined competency level. Note: Full time rotations in clinical settings will be assigned to preceptors. Shift work and weekends may be required. Students will be required to travel to clinical sites outside the Halifax Regional Municipality. Students will be responsible for travel and accommodations.
PREREQUISITE: RSPT 1020.03, RSPT 1000.03, HSCE 1010.03, HSCE 1010.03, BIOC 1420.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Respiratory Therapy

RSPT 2000.03: Principles of Mechanical Ventilation.

This course will introduce the student to the delivery of mechanical ventilation by learning the terminology, physical principles and physiologic concepts associated with the application of mechanical ventilation. Equipment operation, function and troubleshooting will be investigated in the lab and clinical setting.

FORMAT: Lecture 3 hours, lab/clinical 3 hours
PREREQUISITE: RSPT 1500.03
CO-REQUISITE: RSPT 2000.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Respiratory Therapy
RSPT 2020.03: Application of Mechanical Ventilation. Students will be introduced to the background knowledge necessary for understanding the physical principles and concepts governing the operation of mechanical ventilation, and assist respiratory therapy equipment to ensure the safe and effective delivery of therapy. Clinical skills training is required. FORMA: Lecture 3 hours, lab 3 hours.
PREREQUISITE: RSPT 2000.03, 2010.03, 2020.03, 2070.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Respiratory Therapy

RSPT 2030.03: Cardiopulmonary Physiology II. This course is a continuation of the physiological concepts introduced in RSPT 1030 and will examine the intricate chemical and physiological processes of fluid and electrolyte balance, pulmonary function testing, hemodynamics and the cardiopulmonary response to unusual and changing environments. Case study presentations and patient scenarios will complement the learning environment and assist the student in integrating previous knowledge. FORMA: Lecture 4.5 hours, individual and group work, presentations, case study scenarios.
PREREQUISITE: RSPT 1500.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Respiratory Therapy

RSPT 2050.03: Health Practice for Respiratory Therapy. This course consists of classroom work, clinical skills testing, guest presentations, community project and an advanced cardiopulmonary support course (ACLS). The learning environment will enhance the understanding of the role of the respiratory therapist in hospitals, healthcare facilities and the community. Basic competency level in the skills required for RSPT 2500 will be achieved through practicing the clinical skills in the lab. Students will be challenged to evaluate and integrate knowledge and skills. FORMA: Lecture 3 hours, lab 3 hours. One required weekend workshop in ACLS.
PREREQUISITE: RSPT 2000.03, 2010.03, 2020.03, 2070.03

RSPT 2063.03: Respiratory Disease & Therapeutics I. The proper assessment, evaluation and treatment of clients with conditions and diseases affecting the cardio-respiratory system are vital to the role of a respiratory therapist. The purpose of this course is for students to gain knowledge and understanding of the incidence, etiology, clinical manifestations, pathophysiology, and differential diagnosis of pathologies treated by respiratory therapists in the acute, chronic and home care environments. While analyzing each individual disease, the evidence-based treatment and prevention strategies, including pharmacology, will be examined.
FORMA: Lecture 4.5 hours.
PREREQUISITE: RSPT 1500.03

RSPT 2065.03: Respiratory Disease & Therapeutics II. The proper assessment, evaluation and treatment of clients with conditions and diseases affecting the cardio-respiratory system are vital to the role of a respiratory therapist. The purpose of this course is for students to gain knowledge and understanding of the incidence, etiology, clinical manifestations, pathophysiology, and differential diagnosis of pathologies treated by respiratory therapists in the acute, chronic and home care environments. While analyzing each individual disease, the evidence-based treatment and prevention strategies, including pharmacology, will be examined.
FORMA: Lecture and PBL 4.5 hours.
PREREQUISITE: RSPT 2063.03

RSPT 2070.03: Human Pregnancy and Fetal/Newborn Development. This course contains background information and assessment skills necessary for the progression to more advanced assessment, skills and competency levels in respiratory care of the normate and child. The integration of this and additional required courses will allow the student to learn and to challenge the competency component of the program as it relates to neonatal/pediatric therapies and instrumentation, pathophysiology, applications of mechanical ventilation, pharmacology, and Neonatal Resuscitation Program (NRP).
FORMA: Lecture 3 hours, and NRP.
PREREQUISITE: RSPT 1500.03

RSPT 2500.03: Clinical Practicum II. This clinical practicum provides students with the opportunity to continue clinical skill competency development and achieve defined skills by performing in a clinical patient environment. Students will have the opportunity to rotate through assigned clinical placements throughout the 12 hour day and eight shifts during weekends, depending upon the placement requirements. FORMA: Full-time rotations on clinical settings with assigned preceptors. Students will be required to travel to clinical sites outside the Halifax Regional Municipality. Students will be responsible for travel and accommodation arrangements.
PREREQUISITE: RSPT 2020.03, 2050.03, 2065.03, 2070.03, HSCE 2000.03
RESTRICTION: Restricted to Bachelor of Health Science students in the professional stream of Respiratory Therapy

RSPT 3000X/Y.06: Anesthesia Instrumentation and Clinical Techniques. This course will consist of two modules, the first being a seminar/lecture series during the first few weeks of the Fall semester and the second being two-weeks of full-time clinical application program in the operating room. Students will be precepted by an anesthetist with focus on surgery management skills and patient monitoring. Students will also attend an intensive 2-day workshop in management of the difficult airway. Depending on availability of clinical sites, students may be expected to travel outside the metro area at their own expense.
NOTE: Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.
PREREQUISITE: RSPT 2500.03
RESTRICTION: Restricted to Bachelor of Health Science students enrolled in the professional stream Respiratory Therapy

RSPT 3010X/Y.06: Neonatal and Pediatric Therapeutics. This course will consist of two modules, the first being a seminar/lecture series during the first few weeks of the Fall semester and the second being a five-week full-time clinical application program. Students will integrate and apply theories and skills in the neonatal and pediatric environment and understand the role of the skilled preceptor. Students will be assigned to diverse clinical areas including Neonatal Intensive Care I and II, Paediatric Intensive Care, Birth Unit, and General Ward. Students may be assigned to clinical experiences during twelve hour day or night shifts. Students may be required to travel outside the metro area at their own expense.
NOTE: Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.
PREREQUISITE: RSPT 2500.03, STAT 1060.03
NOTE: Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.
RESTRICTION: Restricted to Bachelor of Health Science students enrolled in the professional stream Respiratory Therapy

RSPT 3020X/Y.06: Cardiac and Pulmonary Diagnostics. This course will consist of two modules, the first being a seminar/lab series during the first few weeks of the Fall semester and the second being a three-week full-time clinical application program in the adult and pediatric pulmonary function, arterial blood gas analysis, electrocardiography and sleep laboratories. Students will integrate and apply theories and skills in specialized diagnostic environments. Students will be precepted and evaluated by certified technologists. This course will enable students to become proficient in performing cardio-pulmonary diagnostic testing including spirometry. Students will have exposure to bronchospirometry testing and exercise stress testing. Students may be required to travel outside the metro area at their own expense.
NOTE: Students taking this course must register in both X and Y in consecutive terms; credit will be given only if both are completed consecutively.
PREREQUISITE: RSPT 2500.03, STAT 1060.03
RESTRICTION: Restricted to Bachelor of Health Science students enrolled in the professional stream Respiratory Therapy

RSPT 3230X/Y.06: Critical Care Instrumentation and Clinical Techniques. This course will consist of two modules; the first being a seminar/lecture series during the first few weeks of the Fall semester and the second being a five-week full-time clinical application program in diverse critical care areas. Students will be presented with the concepts and theories relevant to the respiratory care of the...
critical patient. Students will recall and apply theories and concepts learned in previous courses in order to integrate this knowledge with new information presented. The clinical application program will provide the students with the opportunity to integrate theories and procedures learned in the seminar/lecture series. Students may be assigned to any of the following critical care areas: medical, surgical, neurosurgical, cardiovascular and coronary care. Depending on availability of clinical sites, students may be expected to travel outside the Metro area at their own expense.

NOTE: Credit can only be given for this class if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

PREREQUISITE: RSPT 2500.03
CO-REQUISITE: RSPT 3000X/Y.06

RSPT 3250X/Y.06: Health Practice.
This course enables students to apply theories, practice clinical skills and integrate previous learning experiences acquired throughout the three years of the BHSc program. Students will be assigned to a rotating clinical schedule at various clinical sites. Clinical experiences in this course may occur on weekends or night shifts. Students will be evaluated by preceptors at the assigned clinical sites in consultation with faculty. Students may be required to travel outside the metro area at their own expense.

NOTE: Students taking this course must register in both X and Y terms, credit will be given only if both are completed concurrently.

PREREQUISITE: RSPT 2500.03
RESTRICTION: Restricted to Bachelor of Health Science students enrolled in the professional stream Respiratory Therapy

RSPT 3500.03: Clinical Practicum III.
This course enables students to integrate theories and skills acquired throughout the previous three years of the program, including theory, clinical practicum and clinical education courses. Students will be assigned to diverse clinical areas and patient populations. Clinical experiences in this course will occur during twelve hour day and night shifts, including weekends.

FORMAT: May also include one weekend workshop in Pediatric Advanced Life Support.

PREREQUISITE: RSPT 3000.06, 3010.06, 3230.06, 3250.06
RESTRICTION: Restricted to Bachelor of Health Science students enrolled in the professional stream Respiratory Therapy.

RSPT 4000.12/4100.06: Specialty Practice I/Specialty Practice II.
Specialty practice affords students the opportunity to attain additional competence and knowledge in a specialty practice area. There are three components to specialty practice: clinical, contextual and theoretical. This course can be six or twelve credit hours depending on the nature of the specialty practice. Specialty practice is arranged through consultation with the fourth year/post diploma advisor.

PREREQUISITE: RSPT 3500.03 for entry level students; Post diploma students must consult with the post diploma advisor to assure the necessary prerequisites have been met.

RESTRICTION: Restricted to Bachelor of Health Science students in Respiratory Therapy. Enrolment may be limited due to clinical site availability.

RSPT 4010.03: Anaesthesia Technology and Related .
The course will provide advanced knowledge of the function, operation, set-up and quality assurance issues regarding anaesthesia and related equipment. The student will be provided with the knowledge necessary to work with anaesthesia equipment in operating room and related settings.

FORMAT: Online delivery via BLS

PREREQUISITE: RSPT 3500.03
RESTRICTION: Restricted to Bachelor of Health Science students in Respiratory Therapy or by permission of instructor

RSPT 4020.03: Anaesthesia Medication Delivery.
The course will provide in-depth knowledge of the modes of delivery and action and interaction of anaesthesia pharmacology. The student will be provided with knowledge regarding common medications related to the delivery of anaesthesia and monitoring their effect in the operating room and related settings.

FORMAT: Online delivery via BLS

PREREQUISITE: RSPT 3500.03 or equivalent
RESTRICTION: Restricted to Bachelor of Health Science students in Respiratory Therapy or by permission of instructor
Interprofessional Health Education

I. Course Descriptions

IPHE 2201.03: Introduction to Aboriginal Peoples’ Health and Healing.
This course provides students the opportunity to learn about Aboriginal perspectives regarding health, as well as the multiple and complex challenges facing Aboriginal peoples with respect to key health issues, such as health and social inequalities, the epidemiology of disease and culturally appropriate service provision.

RESTRICTION: Faculty of Health Professions students only

IPHE 4900.00: Interprofessional Health Education Portfolio.
This course is intended to prepare students to work in a collaborative and patient/community/family-centered work environment. Students in Health Professions undergraduate programs are required to maintain registration in this course for the duration of their studies. The student will be required to have completed, by the end of their program of study, a total number of different, meaningful and relevant interprofessional collaborative learning experiences (as determined and approved by the School/College) equal to two times the number of years or part of years of study on the program. At least one of these experiences will be in a practice setting (in the event there are no students from other professions in any of the student’s practice settings, credit may be granted for interactions with non-student professionals which follow an approved structured format). The experiences will include interactions with undergraduate and/or graduate students from a total of at least 4 different related professions with which there are natural affinities or linkages in the professional environment, some professions of which are outside the student’s home School/College. In accordance with the guidelines/requirements of the home School/College, students will prepare a portfolio (or comparable document/process) which maps their interprofessional collaborative learning experiences on to the specific requirements of the School/College. The portfolio will be graded by the School/College on a Pass/Fail basis. Successful completion of this course is a requirement for graduation in all programs, and will be recognized further with the awarding of a special Certificate in Interprofessional Collaboration to be presented by the Faculty of Health Professions.

NOTE: Students must ensure they are registered for the correct section that corresponds with their school/college and must check the timetable for the appropriate section for their discipline.

Nursing

School of Nursing
Location: Forrest Building
5600 University Avenue
PO Box 13000
Halifax, NS B3J 4E2
Telephone: (902) 494-2530
1-800-500-0912
Fax: (902) 494-3407
Website: http://www.nursing.dal.ca
Dean
Webster, W. G., PhD
Director
MacMillan, K., Diploma Nursing, BSc, MA, MSc, PhD (Toronto), RN
Associate Director, Graduate Studies
MacDonald, M., BN (UNB), MSN (S. Maine), PhD (San Diego), RN
Associate Director, Undergraduate Studies
van Soeren, Mary, Diploma N (Ontario), BSc, PhD (Guelph)
Associate Director, Research and International Affairs
Tomblin Murphy, G., BN, MN (Dalhousie), PhD (Toronto), RN
Assistant Director, Graduate Studies
Houk, S., Diploma N (Kelley), BScN (Sask), MN (Dalhousie), RN
Assistant Director, Undergraduate Studies
Steinbeck, A., BScN, MScN, PhD (UBC), RN
Assistant Director, Undergraduate Studies
Steenbeck, A., BScN, MScN, PhD (UBC), RN
Senior Clinical Coordinator
Bleasdale, B., BN (Dalhousie), RN
Clinical Coordinator, NP Program
Hodgson, T., BScN (Arctic Nursing), NP
Coordinator, BScN (Arctic Nursing)
Edgewater, N., BN (Lethbridge), MN, PhD (Dalhousie), RN
Professors
Hughes, J. M., BN (Dalhousie), MS (Boston), PhD (McGill), RN
Latimer, M., BScN, MSN (Dalhousie), PhD (McGill), RN
Martin-Meurer, R., DOCHN, BScN, MN, PhD (Dalhousie), PhD (Calgary), RN
MacFarlane, M., BN (UofM), MSN (S. Maine), PhD (San Diego), RN
Sabo, B., BA (Manitoba), MA, PhD (Dalhousie), RN
Steinback, A., BScN (McMaster), MSN, PhD (UBC), RN
Tandlum, L., PhD (Dalhousie), MEd (Ontario), NP (McGill)
van Soeren, Mary, Diploma N (Ontario), BSc, PhD (Guelph)
Assistant Professors
Campbell-Voss, M., BScN, MSN (Dalhousie), PhD (McGill), NP
Chereck, A., BScN, MN, PhD (Dalhousie), RN
Vandewater, D., BN, MN (Dalhousie), RN
Sakariassen, E., BN (UCalgary), MN (Athabasca)
Ritter, J. R., BSc, BEd, MEd (MUN)
Nymark, P., BN (Dalhousie), NP, MN (Athabasca)
Newell, J., BN, MN (Dalhousie), RN
Muxlow, J., PostRN/BN (Dalhousie), MScN (Boston), RN
Moffitt, P., BScN (UBC), MN (UNB), PhD (Calgary)
McLaughlin, H., BN, MN (Dalhousie), RN
MacDonald, R., BSc (Acadia), MHScN (Australia), RN
MacConnell, G., BScN (St. FX), MN (Dalhousie), RN
Luciani, A., BScN (Ryerson), MN (MUN), RN
Lackie, K., BN, MN (Dalhousie), RN
Lachlan, H., BSc, MSc, PhD (Queen’s)
Livingstone, L., BA (Prince Edward), RN
Lyons, R. F., BA (Dalhousie), MEd (St. FX), PhD (Oregon)
Larson, T., BSc (Manitoba), RN
Packer, T., BSc (Hons), MSc, PhD (Queen’s)
Rathwell, T., BA (Hons) (York), MA, PhD (Durham)
Singhania, J., BA (Waterloo), MS (Penn State), PhD (Maryland), Associate Professor
School of Recreation, Physical and Health Education
Sketris, I., BPharm (Toronto), MPharm (Pharmacy), PHD (Pharmaceuticals)
Thomas-Bernard, W., BA, BSc, MS (Dalhousie), PhD (Sheffield)
Townsend, E., BSc (Toronto), MEd (St. FX), PhD (Dalhousie)
Vanoukl, J., BSc (Toronto), MSc (Ontario), PhD (Queen’s)
Werner, G., BSc (Emory), PhD (Case Western Reserve)

Preceptors

Many nurses and people in other disciplines, and settings, provide valuable assistance in the education of nursing students. Names can be obtained by contacting the School of Nursing.

I. Introduction

The School of Nursing opened in 1949 and became a constituent part of the Faculty of Health Professions in 1961. Currently the School offers an undergraduate program for Basic and Post Diploma students, a Bachelor of Science (Arctic Nursing), a Master of Nursing Program and a PhD (Nursing) Program.

A. School of Nursing Regulations

1. Students are required to observe the University Regulations and Academic Regulations as described in this calendar.

2. Students are assessed on their aptitude and fitness for nursing. Students who, in the judgment of the faculty, fail to attain a satisfactory standard in this assessment, may be required to withdraw from the School.

3. Students are responsible for ensuring that they are registered in appropriate courses throughout the program. Incorrect registration, at any time, could cause conflicts in a student’s year-to-year progression and/or graduation.

4. Students in the Baccalaureate Program are responsible for (a) the purchase of recommended and/or required immunizations and/or testing. Each student must also purchase a name tag from the University.

5. Because of enrolment limits on class size, part-time students who wish to change to full-time status must present this request in writing to the Assistant Committee to help them plan their academic program and to discuss academic progress or difficulties.

6. Students are permitted to repeat a nursing course, exclusive of nursing electives, in the BScN program only once. A second failure will result in dismissal from the program.

7. Students wishing to appeal a decision based on faculty regulations or decisions should follow the School of Nursing Appeal Procedure outlined in the Nursing Student Guide.

8. Supplemental exams will not be available in clinical courses.

9. Because of the nature of the study and practice of Nursing which places Nursing students in a position of special trust, applicants will be asked to complete a screening to determine past criminal convictions which might affect the applicant’s suitability for the practice of Nursing. Students accepted
into the nursing program who provide false information will be disciplined by the university. It is the student’s responsibility to inform the Assistant Director (Undergraduate Studies) of any new criminal conviction which could affect the student’s suitability for practice.

11. Once enrolled in the Nursing Program it is the students’ continuing responsibility to inform the Assistant Director (Undergraduate Studies) of any criminal conviction or any significant personal circumstance which would adversely affect their ability to continue with their studies or which would make them ineligible for registration within CRNNS upon graduation.

B. School of Nursing Appeal Procedure

An appeal is a request for alteration of a decision which is based on School or Faculty regulations (academic matters). Both students and faculty have rights and responsibilities and further, that the University is a complex system, students may experience difficulty in determining how to express dissatisfaction. This document is provided as a guideline for students and faculty in solving dissatisfaction.

The University has established a system which allows students to appeal academic decisions made by faculty. Appeals can be heard at different levels within the University: At the School and at Senate. Appeals are heard in the School by the Student Appeals Committee and at Senate level by the Senate Academic Appeals Committee.

C. Procedure for Undergraduate Appeals

Undergraduate appeals are heard by the Student Appeals Committee of the School of Nursing. Procedures for undergraduate appeal procedures are available from the School.

D. Interprofessional Health Education

Students are required to maintain enrollment in IPHE 4000 (see calendar section on Health Professions, Interprofessional Health Education) for the duration of their studies. Successful completion of this course is a requirement for graduation, and will be recognized further with the awarding of a special Certificate in Interprofessional Collaboration to be presented by the Faculty of Health Professions. Students are asked to consult with their individual school/college to determine the specific guidelines and expectations regarding the required portfolio.

II. Degree Options

A. Bachelor of Science (Nursing) for Basic Students

1. Degree Requirements

Throughout the undergraduate program students must: obtain a minimum cumulative GPA of 2.0; complete a minimum of 129 credit hours; successfully complete all compulsory courses, as well as the necessary number of elective courses. Credit will be given for non-nursing courses that are up to ten years old by the date the degree is completed.

2. Grade Point Average Standards (GPA)

The grade point average system is described in the Academic Regulations.

3. Grades


4. Requirements for Promotion

Besides meeting the GPA requirements students must meet the following for promotion: Year 1 to Year II: A student must pass all 1000-level courses in order to advance to 2000-level nursing courses, including, ANAE 1010.03, PSIY 1010.06, and BIOC 1420.03. Year II to Year III: A student must pass all second-year nursing courses, MICT 1100.03, and STAT 1060.03. Year III to Year IV: A student must pass all 3000-level nursing courses.

5. Normal Workload

The program consists of 129 credit hours (21.5 credits); Students can register for a maximum of 15 credit hours per term.

6. Prerequisite for Course Admissions

There are a number of courses that require prerequisites (see course descriptions). Students must successfully complete the required prerequisites for each course or obtain approval from the Committee on Undergraduate Admission Secretary.

7. Advanced Placement

Incoming students with previous post-secondary work may qualify to complete an accelerated or fast-track BScN stream. Two Calendar Year, Three Academic Year and Three Calendar Year options are available. To qualify, students must have a GPA of at least 3.0 and specific prerequisites. Space is limited. For more information contact the Undergraduate Admission Secretary.

B. Bachelor of Science (Nursing) (Arctic Nursing)

The Arctic Nursing Program, developed collaboratively between Nunavut Arctic College and Dalhousie University, is a four-year program that focuses on nursing in Nunavut. This program is designed for Nunavut residents. The curriculum emphasizes awareness and respect for Inuit culture and will prepare Inuit nurses to be leaders in the health-care system of Nunavut. To apply or learn more about the program contact the School of Nursing.

C. Graduate Programs

For details of the Master of Nursing, the joint Master of Nursing/Master of Health Administration programs and PhD (Nursing) program, please consult the Faculty of Graduate Studies calendar.

III. Bachelor of Science (Nursing) Degree Program

In response to a health care system based on principles of primary health care, the Bachelor of Science (Nursing) Program prepares nurses to work in partnerships with individuals, families, groups and communities to promote, maintain and strengthen health. Graduates are prepared to respond to a range of health and illness needs in a variety of settings and organizational health care infrastructures. The curriculum is designed to enable graduates to meet the standards of nursing practice in Canada and be eligible for registration in Nova Scotia. In addition to the Dalhousie Campus, students may complete a BScN degree on site in Yarmouth. Students interested in this option should contact the School for further information.

Program Objectives

The Bachelor of Science (Nursing) graduate will:

1. Demonstrate application of nursing science through critical inquiry, commitment to life-long learning and evidence-based practice.

2. Practice competently by applying the principles of primary health care with diverse *clients in a variety of health care contexts and by responding to emerging trends, technology and concepts in health.

3. Communicate, collaborate and partner with *clients, and other members of the health care team to increase capacity and enhance health of populations.

4. Demonstrate ethical, legal and professional accountability in the practice of nursing and remain committed to professional competence through life-long learning.

5. Influence nursing and health care through a social and political analysis of current health care issues and application of leadership skills.

* (individuals, family, groups, community and/or populations)

A. Bachelor of Science (Nursing) for Basic Students

The Bachelor of Science in Nursing degree is a 129 credit hour program. Graduates are eligible to write examinations for membership in the College of Registered Nurses of Nova Scotia.

1. Immunization

Before commencing first year studies, students are responsible to have complete and current immunizations against diphtheria, polo, tetanus, pertussis, measles, mumps, rubella, Hepatitis B and 2-step Meninges. Access to clinical agencies will be denied if immunizations are not current and complete.
2. CPR, (BCLS) and Standard First Aid Certification

Before commencing first year studies, students must have CPR (Health Care Provider Level) and Standard First Aid Certification. CPR and Health Care Provider Level must be renewed annually. A cardio-pulmonary resuscitation (CPR) course and standard first-aid course are the student's responsibilities in time and cost. Access to clinical settings will be denied if certification is not current.

3. Course of Study

The program is offered at both the Halifax and Yarmouth sites. The following is an outline of courses that are normally taken each year.

Program requirements may change with ongoing curricular revisions.

First Year
• ANAT 1010.03
• BIOC 1420.03
• PHYS 1010.06
• NURS 1000.03
• NURS 1030.03
• NURS 1220.03
• NURS 1240.03 (a five-week clinical/course starting in late April or early May with annual variations)
• nine credit hours at the 1000 level from Biology, Chemistry, Philosophy, Psychology and/or Sociology.

Second Year
• MICS 1100.05
• NURS 2000.03
• NURS 2035.03
• HSS 2050.03
• NURS 2080.03
• NURS 2090.03
• NURS 2100.03
• NURS 2120.03
• NURS 2220.06 (a six-week clinical nursing internsession taken in May/June or July/August)
• STAT 1040.03

Third Year
• NURS 3080.03
• NURS 3060.03
• NURS 3260.03
• NURS 3270.03
• NURS 3280.03
• NURS 3290.06 (a six-week clinical nursing internsession usually starting in April or early May with annual variations)
• Six credit hours at the 2000 or 3000 level from Biology, Chemistry, Philosophy, Psychology, and/or Sociology.

• Three credit hours of general electives may be taken from any course NOT listed as a nursing elective; however, the course must be at the 2000 level or above except in the case of a language (not English) which can be taken at the 1000 level.
• One Nursing elective (three credit hours)

Fourth Year
• NURS 4260.03
• NURS 4250.03
• NURS 4260.03
• NURS 4250.03
• NURS 4260.03
• NURS 4240.03
• One Nursing elective (three credit hours)
• NURS 4240.06 (minimum 280 hour internship beginning in March)

B. Bachelor of Science (Nursing) for Registered Nurses

The Bachelor of Science (Nursing) for registered nurses consists of 60 credit hours of study. Students may complete the program at either the Halifax or Yarmouth sites through full- or part-time study. The program can be completed in two calendar years of full-time study provided Faculty resources allow required nursing courses to be offered during the summer session. Otherwise, students without transfer credits can complete the program in two full-time and one part-time academic year (September - April). Part-time students who wish to change their status to full-time must write their request to the Associate Director of Undergraduate Student Affairs by March 1.

A clinical major option in oncology nursing may be available as a course component of the BScN (RN) degree program.

The School of Nursing has made a commitment to offer accessible nursing education to registered nurses allowing them to obtain their education in the communities where they live and work.

Check with the Distance Advisor for Post RN students regarding course offerings.

Course of Study

With the help of an academic advisor, an individual course of study is determined. Course of study may be affected by the actual courses offered in an academic year. Certain courses may have prerequisites as noted in the course descriptions. Part-time students are encouraged to complete most of the required non-nursing courses before starting nursing courses. The course of study varies considerably when the student applies transfer credits toward the degree. Transfer credit regulations are outlined under the Academic Regulations section of the University Calendar.

Required Courses
• STAT 1060.03
• NURS 2200.03
• NURS 3080.03
• NURS 3260.03
• NURS 4250.03
• NURS 4260.03

• Nursing Electives (six credit hours)
• The six credit hours of electives may be chosen from Nursing and Interdisciplinary courses. Course selections vary by year. Please consult the current year's timetable for course offerings.

Optional courses (nine credit hours must be selected)
• NURS 2080.03
• NURS 2240.03
• NURS 2270.03
• NURS 4090.03

Eighteen credit hours must be chosen from at least two of the following nursing subject areas: Anatomy, Biochemistry, Biology, Chemistry, Microbiology, Philosophy, Physiology, Psychology and Sociology.

Six credit hours of general electives must be taken from any course NOT listed as a nursing elective; however, the course must be at the 2000 level or above except in the case of a language (not English) which can be taken at the 1000 level. An open elective (either nursing or general) is also required.

C. Nursing Elective Courses

Basic students are required to complete six credit hours of nursing electives. Post RN students must complete six credit hours of nursing electives. NOT ALL NURSING ELECTIVES ARE OFFERED EVERY YEAR. Please consult the School to ascertain the current offerings. When resources allow, the following are offered:
• NURS 2360.03: The Phenomenon of Pain: Assessment and Management.
• NURS 2350.03: Emergency Preparedness: A Nursing Perspective.
• NURS 3380.03: Culture Caring and Health Care.
• NURS 3310.03: Health Informatics.
• NURS 3220.03: Acute Care Specialty Nursing.
• NURS 3330.03: Fundamentals of Oncology Nursing.
• NURS 3340.03: Alternative and Complementary Therapies: Implications for Nursing Practice.
• NURS 4090.03: Nutritional Counseling for Family and Community Health.
• NURS 4350.03: Self-Directed Learning.
• NURS 4351.03: Specialty Practice of Oncology Nursing.
• NURS 4350.03: Management - The Process in Health Care Agencies.
• NURS 4371.03: Addictions Nursing Practice.
• NURS 4380.03: Introduction to Epidemiology Methods in Nursing Practice.
• NURS 4390.03: Intermediate Pathophysiology and Nursing.
D. Interdisciplinary Nursing Elective Courses
   • NURS 4770.03: Women and Aging.
   • NURS 4800.03: Interdisciplinary Course in Human Nutrition.

IV. Course Descriptions
   Section 01 is restricted to students registered in the Allied program. Section 02 is restricted to students registered in the NURS 1000 program. Section 06 is for students choosing the Distance option.
   ANAT 1010.03: Basic Human Anatomy.
   See course description in the Anatomy/Neuroanatomy section of calendar.

BIOC 1420.03: Introductory Biochemistry for Nursing Students.
   See course description in the Biochemistry/Molecular Biology section of calendar.

MICI 1100.03 Health Science Microbiology.
   See course description in the Microbiology and Immunology section of calendar.

NURS 1000.03: Introduction to the Foundations of Nursing.
   Major concepts of health and professional nursing are introduced. Students begin to develop an awareness of the practice of nursing based on the determinants of health, primary healthcare and major nursing concepts. Emphasis is given to the helping role of nursing. A variety of experiences facilitate learning and students are introduced to the practice of nursing in clinical settings.
   FORMAT: Lecture 2 hours, tutorial 1 hour

NURS 1030.03: Human Development and Health I: Adults and Healthy Aging.
   Guided by the principles of Primary Health Care and building on the concepts introduced earlier, students examine the developmental processes experienced by adults. Students focus on the psychosocial, cultural, cognitive, and spiritual health of adults and on nursing practices that promote health in adults. As a basis for these experiences, the concept of a developmental stage is explored. Strategies to foster healthy aging at the individual, family, and community level are explored.
   FORMAT: Lecture 3 hours
   PREREQUISITE: NURS 1000.03

NURS 1220.03: Knowledge and Process in Nursing Practice I.
   Students develop beginning competence in the use of health assessment. Comprehensive health assessments are integrated as a basis for clinical interventions inherent in the caring role. In addition, students are introduced to the organizational and role responsibilities required for clinical practice.
   FORMAT: Lecture 2 hours, clinical/lab 4 hours
   PREREQUISITE: NURS 1000.03

NURS 1240.03: Introduction to Nursing Practice.
   Students are introduced to healthcare settings where they interact with older adults at various levels of health. As a basis for these experiences, the foundations of nursing education in NURS 1000 and NURS 1010 are further developed. Learning experiences are designed to promote beginning knowledge and skills for the practice of nursing with an emphasis on helping relationships.
   FORMAT: Lecture/lab and clinical 40-hour week for 5 weeks
   PREREQUISITE: NURS 1000.03, 1220.03

NURS 2000.03: Teaching and Learning and the Communication Process.
   Teaching and learning interactions among nurses and individuals, families, groups and communities are integral to health and well-being. The process of communication is central to the teaching-learning process and occurs within the nurse-patient relationship (a collaborative partnership). The course is designed to provide students with opportunities to critically analyze and integrate the teaching-learning dynamics of nursing practice within the helping role of the nurse. Principles and theories of learning are used to identify strategies to help clients acquire knowledge, skills and attitudes that enable them to maintain optimal levels of health. The course includes an introduction to the counseling role of the nurse with a focus on diaphoretic communication strategies necessary to establish partnerships with clients. Students are given opportunities to expand their existing interviewing and communication skills and teaching abilities.
   FORMAT: Lecture 3 hours
   PREREQUISITE: NURS 1240.03, BIOC 1420.03, PHYLL 1010/06, ANAT 1010/03

NURS 2035.03: Nursing Research.
   This course requires students to engage in a critical inquiry about how research processes influence the way knowledge is constructed. Students explore dimensions of knowing from multiple perspectives of acquired knowledge, experiential knowledge of nursing practice, conceptual meanings, collaborative practice partnerships and values and beliefs about the contributions of nursing knowledge as transformative in the healthcare system. Sharing new knowledge resulting from the synthesis and transfer of evidence across disciplines and healthcare sectors will be examined. The use of innovative and creative thinking supports students to design ways of communicating and translating research findings for application to practice.
   FORMAT: May be offered in class (3 hour lecture) and/or on-line
   PREREQUISITE: NURS 1240.03, ANAT 1010/03, PHYLL 1010/06, BIOC 1420.03
   CO-REQUISITE: STAT 1060.03, MATH 1060.03

NURS 2050.03: Pharmacology and Nursing.
   Students are introduced to the pharmacokinetics and pharmacodynamics of the major drug categories with an emphasis on application to the clinical setting. Interdisciplinary and collaborative aspects of the nurse’s role in administering and monitoring medications and the effects of drugs are explored. Students demonstrate knowledge of dosage calculation, preparation and administration of medications.
   FORMAT: Lecture 3 hours
   PREREQUISITE: NURS 1240.03, BIOC 1420.03, PHYLL 1010/06, ANAT 1010/03
   CO-REQUISITE: NURS 2090.03, NURS 2200.03

NURS 2080.03: Social and Cultural Determinants of Health.
   Social inequities often make it difficult for individuals, families, groups and communities to attain or maintain health. This course is designed to critically analyze the social and cultural determinants of health. Students explore their own attitudes and beliefs related to topics including racism, poverty, ageism, sexism and classism. Critical social theory, cross-cultural nursing, communication, health promotion, health education and social action are included in the course to provide students with the knowledge and skills to influence the social determinants of health in the healthcare system.
   FORMAT: Lecture 3 hours
   PREREQUISITE: NURS 1240.03, BIOC 1420.03, PHYLL 1010/06, ANAT 1010/03

NURS 2090.03: Pathophysiology and Nursing.
   This course provides a foundation for understanding human physiological responses to health alterations. An in-depth understanding of structural and functional changes from normal serves as the basis for nursing assessment, intervention, and care.
   FORMAT: Lecture 3 hours
   PREREQUISITE: BIOC 1420.03, ANAT 1010/03, PHYLL 1010/06, NURS 1240.03
   CO-REQUISITE: MICI 1100.03, NURS 2050.03, NURS 2200.03

NURS 2200.03: Knowledge and Process in Nursing Practice II.
   Students are introduced to theoretical bases of nursing to guide critical thinking behaviors and outcomes. Students build on health assessment skills, monitor, implement and evaluate nursing interventions. Students are introduced to research to guide reflective nursing practice and the safe use of technology and caring approaches in laboratory settings.
   FORMAT: Lecture 2 hours, lab 2 hours
   PREREQUISITE: NURS 1240.03, ANAT 1010/03, PHYLL 1010/06, BIOC 1420.03
   CO-REQUISITE: NURS 2500.03, NURS 2200.03

NURS 2220.06: Nursing Practice II.
   (practicum) This clinical practicum enables students to continue to integrate primary healthcare principles, nursing knowledge and theory, and nursing processes within nursing practice. Students consolidate concepts, theories and skills in caring for individuals in acute and chronic care settings. Emphasis is...
NURS 2250.03: Theoretical Perspectives for Contemporary Nursing Practice.

The purpose of this course is to provide students the opportunity to use theoretical perspectives in nursing to discover knowledge related to the process of nurse-client interaction. Students will examine the development and progress of relevant nursing theories and explore the relationships between nursing theory, nursing science, and nursing knowledge. Students will be introduced to selected methods of theory analysis. The concepts and assumptions of selected nursing theories will be used to describe and explain phenomena relevant to nurse-client interaction.

FORM: Lecture 2 hours, clinical 4 hours

RESTRICTION: For POST-RN students only

NURS 2260.03: PREREQUISITES: NURS 2220.03, STA T 1060.03, MICI 1100.03

FORM: Lecture 4 hours, 78 clinical hours total

NURS 2360.03: The Phenomenon of Pain: Assessment and Management.

This course challenges students to critically examine their current knowledge and skill in the nursing responsibilities associated with care of clients experiencing pain and to further develop students' knowledge, attitudes, skills, and competencies in providing effective pain management. Students will improve their ability to identify the client who has pain, perform comprehensive assessments of pain and its impact, initiate nursing interventions to alleviate the pain and evaluate the effectiveness of those interventions. Emphasis is placed on advancing the students' ability to assess, analyze, and manage this complex phenomenon in order to successfully provide effective pain relief. Critical thinking, interpersonal communication, and documentation skills will be enhanced through a variety of learning activities including case studies and weekly online, asynchronous discussions.

FORM: Distance

NURS 2380.03: PREREQUISITES: NURS 2260.03, 2280.03, 2250.03

FORM: Lecture 2 hours, 78 clinical hours total

NURS 2390.03: Emergency Preparedness: A Nursing Perspective.

This course focuses on preparation of future nurses for various hazards using an "all hazards" approach. Local, provincial, and national disaster response systems, in the event of a mass casualty, are explored, and the ability to care for victims and responders of all types of hazards is emphasized.

FORM: Distance

NURS 3040.03: Human Development and Health II: Children and Youth.

This course examines concepts and theories of healthy growth and development across the life-span from conception to adolescence. Content is organized around health, nutrition, and the safety of individuals at specific stages in their physical, cognitive, and psychosocial development. Concepts of culture/ethnicity, environment, economic status and other life situations are introduced in terms of their relationship to optimal health.

FORM: May be offered in class (3 hour lecture) and/or online.

NURS 3060.03: Legal and Ethical Issues in Nursing Practice.

Note: This course available starting 2014-2015. This course is designed to provide background understanding and application of ethical and legal concepts and theory within the dimensions of nursing practice. Students focus on decision-making processes and the impact of technology on nursing practice.

FORM: Lecture 3 hours

NURS 3080.03: Culture Caring and Health.

This nursing elective promotes student awareness of the international/global impact of culture on health beliefs and client access to healthcare systems. Students explore their own attitudes and approaches to international/global cultures. Through this exploration, students identify strategies for international/global healthcare practices.

PREREQUISITE: NURS 1240 or with instructor’s permission.

NURS 3260.03: Nursing Practice: Mothers, Infants and Childbearing Families.

Students focus on the integration of the domains of nursing practice in caring for mothers and newborn infants within the context of the childbearing family. The nature of the childbirth experience is critically analyzed from the perspectives of the determinants of health as well as the theoretical bases of maternal-infant attachment and nurse caring. Clinical experiences with clients during pregnancy, birthing and post birth in hospital and home settings enable students to focus on health promotion within the context of family-centered care.

FORM: Lecture 2 hours, 78 clinical hours total

NURS 3270.03: Nursing Practice: Caring for Families.

Guided by the principles of primary healthcare, students focus on families and family health with an emphasis on a thorough understanding of family assessment and developing family therapeutic relationship skills. Students examine family health and health issues from a nursing, cultural, sociological, psychological and other theoretical perspectives as they relate to nursing practice that focuses on working with families in all settings. Upon completion of the course, students will have developed competencies required to use a systems approach when working with families. Laboratory and clinical experiences that include visiting families in their homes provide the students with opportunities to integrate, discuss and practice family nursing.

FORM: Lecture 2 hours, 78 clinical hours total

NURS 3280.03: Care of Adults II.

This course focuses on family-centered nursing practice with adults who are managing complex health problems. Emphasis is placed on theoretically based nursing strategies incorporating principles of primary healthcare. Students are guided in developing theoretical and research-based critical practice.

FORM: Lecture 2 hours, 78 clinical hours total

NURS 3290.06: Nursing Practice III. (Intersession) This is an opportunity to apply the principles of primary healthcare through reflective practice, the integration and application of theories and family nursing. Students enhance their ability to work with clients through a continuum of care approach. Students must be prepared to travel beyond the Halifax metropolitan area for part or all of this experience.

FORM: Clinical practicum 40 hours/week for 6 weeks

NURS 3310.03: Health Informatics.

This nursing elective provides an overview of information technology and systems as they relate to practice, research, and education. Students are introduced to information technology and provided with opportunities to use critical thinking in applying the implications of information systems.

FORM: Distance

NURS 3320.03: Acute Care Specialty Nursing.

This course introduces students to acute care specialty nursing. Students will further develop, critically analyze, and apply knowledge gained in previous courses with a focus on the management of critically ill adult clients in specialized settings. Emphasis will also be placed on interpersonal and interprofessional relationships within specialty practice.

FORM: Distance

NURS 3330.03: Fundamentals of Oncology Nursing.

This nursing elective provides an oncology nursing elective with a review of the physiology of the cancer cycle, the course considers cancer control related to: prevention, screening, early detection, diagnosis, treatment, supportive care/haematology, palliative care. The focus of the course is to provide
an opportunity for students to understand the cancer experience from the perspective of the patient and their families.

**FORMAT:** Lecture 3 hours
**PREREQUISITE:** NURS 2220.06
**EXCLUSION:** NURS 2350.03

**NURS 3350.03: Family Centered Supportive Care for Those Who Are Living with Cancer.**

This course focuses on families connected to an oncology experience. A family assessment model forms the role of the nurse in family-centered supportive care. Supportive care is the provision of the necessary services as defined by those living with or affected by cancer to meet their physical, social, emotional, nutritional, informational, psychological, spiritual, and practical needs throughout the spectrum of the cancer experience. These needs may occur during the diagnostic, treatment, or follow-up phases and encompass issues of survivorship, recurrence, palliative care and bereavement.

**NOTE:** This course fulfills the requirement for NURS 3270.

**FORMAT:** Lecture 3 hours
**PREREQUISITE:** NURS 2220.06
**CO-REQUISITE:** NURS 3330.03

**NURS 3360.03: Alternative and Complementary Therapies: Implications for Nursing Practice.**

This elective course is designed to advance student knowledge and competencies in caring for clients and families who choose to use complementary and alternative therapies. The use of alternative and complementary therapies is prevalent and popular. Issues such as patient autonomy, freedom of choice, and the principle of non-maleficence are a few of the ethical challenges faced by nurses and other healthcare practitioners. This course introduces students to alternative/complementary therapies and their associated nursing implications. The primary therapies to be examined include mind-body interventions, manual healing therapies, biological healing therapies, diet therapy, native healing and spiritual therapies. Students will also have the opportunity to research non-conventional therapies in relation to cancer treatment and health promotion. This course fills a pressing need for graduating nurses to have a full understanding of these therapies so that they will be prepared to work with clients and families who have chosen to use complementary health practices.

**FORMAT:** Distance
**PREREQUISITE:** NURS 2260.03; or completion of second-year of study in any Health Professions program

**NURS 4030.03: Collaborative Leadership for Nursing Practice.**

Based on the view that leadership is integral to the practice of every nurse, the focus of this course is on the development of leadership theories and behaviors essential to nursing practice. Critical thinking, decision-making processes and other leadership behaviors are fostered through experiential and simulated learning methods.

**FORMAT:** Lecture 2 hours
**PREREQUISITE:** NURS 3290.06; Second and third year Nursing courses are strongly recommended for Post-Diploma; Post-BSN NURS 2250.01

**NURS 4050.03: Advanced Communication and Counselling.**

This course explores theory related to the counselling role of the nurse and addresses the dynamics of therapeutic communication in complex collaborative situations. Counselling occurs within the nurse-patient relationship viewed as a collaborative partnership which requires the active participation, involvement, and agreement of all partners.

The course is designed to assist students to facilitate and encourage individuals, families or client groups to effectively deal with change related to complex health situations. Application of course content in simulated nurse-client interventions in home, clinic or institutional settings enables the student to develop interactive skills in dealing with complex, collaborative health situations such as those requiringsympathy, confirmation, advocacy, conflict resolution and crisis intervention.

**FORMAT:** Lecture 2 hours, lab 2 hrs
**PREREQUISITE:** NURS 2220.06

**NURS 4060.03: Palliative Care Nursing.**

This course provides an overview of the significant issues facing individuals and their families related to life threatening illness, dying, and the promotion of quality of life. An exploration of one's own attitudes, beliefs, and values regarding death and dying provide a foundation for examination and discussion of course content. An analysis of the principles and standards of palliative care, principles of primary healthcare, methods of assessment, and means of pain and symptom management and delivery of care. Emphasis on communication, collaboration within teams, ethical issues, spiritual and cultural influences, and grief and coping provide opportunities for reflection and discussion. Online resources offer opportunities for students to enhance their knowledge and understanding of course content.

**FORMAT:** May be offered in class (2 hour lecture) and/or on-line
**PREREQUISITE:** NURS 2220.06 or permission of course instructor for non-nursing student

**NURS 4210.03: Nursing Practice: Children and Families.**

Students focus on nursing practice in the care of children and families. The determinants of children and family healthcare are examined, as well as the role of nursing practice in health promotion and illness prevention for children. Clinical and family issues associated with childhood illness and hospitalization draw on knowledge of child and family development as well as the art and science of nursing knowledge. Students work in clinical settings where care is provided to children and families experiencing illness.

**FORMAT:** Lecture 2 hours, 78 clinical hours total
**PREREQUISITE:** NURS 3290.06

**NURS 4220.03: Mental Health Nursing Practice.**

Integrating a holistic perspective within a primary healthcare philosophy, this course focuses on the promotion of the individual and community well-being. Through selective practice the use of nursing theories and effective communication, students assist clients through the challenges of mental health problems, crisis, and mental disorders. Students critique the social responsibility of the nursing profession through not only direct care, but also client advocacy.

**FORMAT:** Lecture 2 hours, 78 clinical hours total
**PREREQUISITE:** NURS 3290.06

**NURS 4240.06: Nursing Practice IV Internship.**

Nursing 4240, a clinical internship prior to graduation, provides students with the opportunity to consolidate and apply knowledge and processes within the domains of nursing practice. Students integrate leadership knowledge and behaviours within social healthcare systems. Collaboration and advocacy with clients, other healthcare professionals and others are emphasized. Students are preceptored with a staff nurse and work the full-time hours of the preceptor. Students have input into their clinical placements, based on their learning needs and interests. Students must be prepared to travel beyond the Halifax metropolitan area for part or all of this experience.

**FORMAT:** Clinical internship consists of a minimum of 260 hours
**PREREQUISITE:** All other nursing and non-nursing requirements for the BScN Program must be completed.

**NURS 4250.03: Community Health Assessment.**

Community health is a vital component of primary healthcare. The focus of this course is on the integration of community assessment theory and nursing practice in health promotion and illness prevention. Primary healthcare and population-focused health strategies are used as students collaborate with individuals, families, groups, communities and other healthcare professionals in working towards community health goals. Students apply critical thinking in assessing needs and strengths for community development in a variety of community settings.

**FORMAT:** Lecture 2 hours, clinical 6 hours, tutorial 1 hour
**PREREQUISITE:** NURS 3290.06; Post-Diploma students NURS 2250.01
NURS 4260.03: Community Development and Advocacy.
This course builds on the content of NURS 4250.03. The focus is on critical thinking, intervention, and the evaluation of community health nursing strategies with client groups and communities. Community development is used as a strategy to put primary healthcare principles into nursing practice. Students are encouraged to work with communities using an empowerment and advocacy approach. Current local, national and international health issues are explored. Clinical experience in a variety of community settings allows students to practice nursing in a reflective manner to improve the health of the community as a whole.
FORMAT: Lecture 2 hours, clinical 6 hours, tutorial 1 hour
PREREQUISITE: NURS 4250.03

NURS 4350.03: Self-Directed Learning.
Students may carry out independent studies or projects related to the theory or practice of nursing, under the direction of a faculty facilitator. Students are encouraged to systematically identify, plan, execute and evaluate a learning project that is relevant to nursing practice.
FORMAT: Flexible according to study/project
PREREQUISITE: NURS 2220.06
CROSS-LISTING: NURS 5950.03

NURS 4551.03: Specialty Practice of Oncology Nursing.
This nursing elective challenges learners to consider the comprehensive care of a range of health and illness needs of individuals at risk or living with cancer within the existing infrastructure for cancer care. While the focus of this course is on the context of adults with cancer, the course reflects a critical analysis of the existing theoretical and evidence-based perspectives influencing health-related behaviours of health promotion, illness prevention and decision-making that span from individual to organizational levels.
FORMAT: Lecture 2 hours
PREREQUISITE: NURS 3330.03 (or NURS 2150.03) and NURS 3350.03

NURS 4360.03: Management - The Process in Health Care Agencies.
This nursing elective focuses on management of resources to achieve goals within healthcare agencies and institutions. The agency/institution is viewed as a system with managers, employees and managers exchange services in a system of theory and practice-based techniques to establish goals, plan and utilize resources and evaluate outcomes. Emphasis is placed on the day-to-day use of management strategies, techniques and skills. Relevant theoretical constructs and research are explained and discussed while examining their implications for practice. Current management problems in nursing are explored through this introductory course in management.
FORMAT: Lecture/seminar
PREREQUISITE: NURS 4010.03, or instructor's permission
NURS 4370.03: Women and Aging.
This interdisciplinary nursing elective explores the issues related to socio-economic factors that are major determinants of the well-being of aging women. Topics include: aging as a process, menopause, violence against older women, elder women and housing, self-image and sexuality, health and the aging woman; and older women and poverty.
FORMAT: Lecture/discussion/seminar 2 hours
PREREQUISITE: NURS 2220.03. Non-nursing students should have completed 2 years of university study
CROSS-LISTING: SORA 3248.03/3249.03, GWST 3810.03, NURS 5810.03

NURS 4371.03: Addictions Nursing Practice.
This nursing elective introduces major concepts associated with addiction nursing practice. It provides a foundation for students pursuing careers in addictions-related care. Within a primary healthcare perspective, students critique models and theories of addiction, consider the interplay between social, gender, cultural environments and addictions and become knowledgeable of a variety of treatment approaches. Universal, selective, and prevention activities at an individual, family and community level are explored.
FORMAT: Distance
PREREQUISITE: NURS 2090.03, NURS 2290.03 strongly recommended for Post RNs
CROSS-LISTING: NURS 5871.05

NURS 4380.03: Introduction to Epidemiology Methods in Nursing Practice.
This introductory course intended to provide students with a working knowledge and understanding of the basic concepts and methods of epidemiology. The focus of this course will be the acquisition and application of information about disease and other health-related occurrences at a population level within a public health nursing context. This course will also introduce students to concepts for planning, evaluating, and controlling health programs.
FORMAT: Lecture 3 hours
PREREQUISITE: NURS 2220.03
CROSS-LISTING: NURS 5950.03

NURS 4390.03: Intermediate Pathophysiology and Nursing.
This nursing elective is intended to provide a more indepth examination of selected human physiological function in disease than the Introductory Pathophysiology and Nursing (N2090.03). Emphasis is placed on the study of pathological physiology of the diseases prevalent in Canada. This course introduces students to up-to-date concepts involved in research on these diseases. In addition, it examines various therapeutic strategies used in treating these diseases and their implications for nursing care.
FORMAT: Lecture/discussion 3 hours per week
PREREQUISITE: Basic - PHYL 1010.06, ANAT 1010.05, MICI 1000.03, NURS 2090.03, and NURS 2960.03

NURS 4800.03: Interdisciplinary Class in Human Nutrition.
This interdisciplinary nursing elective is an interdisciplinary study of the basic principles of nutrition needs throughout the life cycle. Physiological, psychological, socio-economic, physical, educational and cultural determinants are explored to explain why the nutritional status of Canadians vary and how this variation affects the development of chronic disease. Special emphasis is given to community nutrition in the Atlantic Region.
FORMAT: Lecture 3 hours, week
PREREQUISITE: BIOX 1000.06 or by faculty permission
CROSS-LISTING: PHAR 4950.03, PHYT 3930.03, HPRO 2250.03, NURS 5990.03

PHYL 1010X/1016: Human Physiology.
See course description in the Physiology section of calendar.

STAT 1000.03: Introductory Statistics for Science and Health Sciences.
See course description in the Statistics section of calendar.

NOTE: A “strong recommendation” to complete one course before another means that some of the content of the new course draws directly on knowledge, skills and experience gained in a previous course. Students should realize that they may have to work some supplementary work in order to meet the expectations of the new course.
Occupational Therapy

School of Occupational Therapy

Location: (Halifax) School of Occupational Therapy

4010 University Avenue, PO Box 15000
Halifax, NS B3H 4R2

Telephone: (902) 494-8804
Fax: (902) 494-1229

Email: occupational.therapy@dal.ca

Website: http://www.occupationaltherapy.dal.ca

Dean

Webster, W. G., PhD

Director

Packer, T., BSc (OT) (Western), MSc, PhD (Queen’s)

MSc (Occupational Therapy) Graduate Coordinator

Merritt, B., BSc (Physiology), MS (OT), PhD (Colorado State)

MSc (Occupational Therapy - Post-Professional)

Graduate Coordinator

Stalnacke, R., BA (Alberta), BSc (OT), MSc (Queen’s), PhD (Dalhousie)

Professors Emeriti

O’Shaughnessy, D. P. & OT (Toronto), BSc (Queen’s), MS (Colorado State), LLD (Dalhousie)

Townsend, E., BSc (OT) (Toronto), BSc (OT) (Toronto) MEd Ed (St. FX), PhD (Dalhousie)

Professor

Packer, T., BSc (OT) (Western), MSc, PhD (Queen’s)

Associate Professors

Brouwer, B., BA, MA (Dalhousie), PhD (UBC)

Dubil, S., BSc (OT) (Western), MS (Brockton), PhD (Dalhousie)

Merritt, B., BSc (Psychology), MS (OT), PhD (Colorado State)

VanMunnik, J., BSc (OT) (Toronto), MSc (OT) (Western), PhD (Queen’s)

Wanner, R., PhD (Epidemiology) (Case Western Reserve University)

Assistant Professors

Brown, J., BSc (OT) (Toronto), MSc (OT) (Dalhousie)

Diedeman, C., BSc (OT) (Western), MSc, PhD (Queen’s)

Lauckner, H., BSc (OT), Msc, PhD (Queen’s)

MacKenzie, D.E., BSc Physical Education (Saskatchewan), BSc (OT) (Alberta), M Ed (McGill), PhD (Dalhousie)

Saunder, J., BSc (OT) (Dalhousie), MSc (Queen’s)

Stalnacke, R., BA (Alberta), BSc (OT), MSc (Queen’s), PhD (Dalhousie)

White, C., BEd (UBN), BSc (OT) (Dalhousie), MEd (UBN), MSc (OT-Post-Professional) (Dalhousie), PhD (Dalhousie)

Lecturer

Landry, K., BSc (OT) (Dalhousie), MSc (Rehabilitation Research, Physiotherapy), (Dalhousie)

Instructor

O’Kearny, C., BSc (OT) (Dalhousie), MSc (OT-Post-Professional) (Dalhousie)

School Fieldwork Education Coordinator

Saunders, J., BSc (OT) (Dalhousie), MBA (St. Mary’s)

International Fieldwork Education Coordinator

Lauckner, H., BSc (OT), MSc (OT) (Dalhousie), PhD (Queen’s)

Provincial Fieldwork Education Coordinators

New Brunswick: Roussel, M., DipRIS (S.L. Maillet), BSc, MA (Montreal)

Newfoundland: TBA

Nova Scotia: Saunders, J., BSc (OT) (Dalhousie), MBA (St. Mary’s)

Prince Edward Island: Cutcliffe, H., Dip (OT) (Man)

Adjunct Appointments

Academic

Audah, A., PhD (Md Sweden Univ)

Baseltti, M., MSc (OT-Post-Professional) (Dalhousie)

Crupi, J., BSc (OT) (Queen’s), MSc (Toronto)

Eldem, D., BSc (OT), MScS (Dalhousie)

Egan, M., BSc (OT) (Western), MSc (OT) (Alberta), PhD (McGill)

Kaski, B., BSc (OT), MEd, PhD (Toronto)

Labbert-Bulman, D., BSc (OT) (Toronto), MSc (OT) (Western), PhD (Toronto)

Palamalier, O., Dip (OT) (Australia, Denmark), MSc (OT) (Colombia)

Pang, T., BSc (OT), MEd, PhD (Toronto)

Taylor, S., Dip (OT) (Queen’s), MA (EMU)

Vandergren, H., Honorary Doctor of Science degree, Univ of. Brighten

Wicks, A., BAS (OT) (Curtin), MHS (OT) (South Australia), PhD (Charles Sturt)

Professional

Cutcliffe, H., Dip (OT) (Manitoba)

Hend, R., BSc (OT) (Alberta), MEd (OT-Post-Professional) (Dalhousie)

Roussel, M., DipRIS (S.L. Maillet), BSc, MA (Montreal)

Cross Appointments

Galagan, J., BA, BA (Hono) (Carleton), MA (Windsor), PhD (Wayne State)

Hutchinson, B., BA, BVNA (MC), MSc (Laval), PhD (Toronto)

Manuel, P., BA (Carleton), MSc (McGill), PhD (Dalhousie)

Unruh, A., BSc (OT) (Western), MSW (Carleton), PhD (Dalhousie)

Waldron, I., BSc (OT) (University of Toronto), MA (L of London), PhD (Toronto)

I. Introduction

The Atlantic School of Occupational Therapy was established in 1982 as the only occupational therapy education program in Atlantic Canada. The School exists in response to strong regional advocacy, particularly since 1958 when a School was approved in principle by the University Senate. The regional orientation of the School fosters collaborative teaching, research and professional activities linking those at the university with occupational therapy and other service providers, government workers, and citizens in the four Atlantic Provinces. This regional mandate is combined with an international perspective linking Dalhousie with universities and communities for fieldwork and research.

Occupational Therapy is a health profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or justice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations. Occupational Therapy is an occupation-focused profession concerned with social inclusion. Practitioners enhance the occupational performance engagement, health and well-being of individuals, groups, and organizations, particularly where inequities or injustice limit opportunities for meaningful participation in daily life occupations.
The role of the occupational therapist is varied and challenging. Occupational issues are never the same because no two people or environments are ever exactly the same. The challenge for occupational therapists is to plan and implement the “just right” program or strategy for each and every client so that everyone can achieve just opportunities to participate in society.

II. Degrees Offered

In concert with national standards and requirements for occupational therapy education, the School of Occupational Therapy at Dalhousie University only offers graduate level degree programs. For further information on our occupational therapy degree programs, please refer to the Graduate Calendar.

1. Certificate in Disability Management

The School of Occupational Therapy offers a Certificate Program in Disability Management to students currently enrolled in an academic program at Dalhousie or another Canadian university. The Certificate Program is built around the philosophy of disability management and early assistance as the most effective means by which to assist injured and ill workers to attain their maximum level of functioning and ability to return to work. Disability Management is designed to benefit injured workers through its participatory and proactive problem-solving process incorporating strategies that ensure workers timely and safe return to work. All courses in the Certificate Program are offered completely on-line.

Please refer to the Disability Management section in this calendar for additional information.

2. Post Professional Certificates

These certificates are for people who are working in health, social, or community services whose professional preparation has normally included a bachelor’s degree or higher in a relevant field. The following certificates are being offered in the School:
- Chronic Condition Self-Management
- Aging and Continuing Care
- Diversity and Inclusion

Please refer to the Occupational Therapy section in the Graduate Calendar for additional information.

3. Master of Science (Occupational Therapy) - MSc (OT):

Master’s Program to Enter the Profession

a. MSc (OT) First course accepted into the program in September 2006.

4. Master of Science (Occupational Therapy—Post-Professional): Post Professional Master’s program for qualified occupational therapists.

a. Research Thesis Stream
b. Practice Leaders Stream
c. Single graduate courses (with instructor’s permission)

5. PhD

Faculty in the School of Occupational Therapy welcome applications for PhD studies focused on occupational therapy or occupational science. Interested persons should contact individual faculty at the School. Applications will be submitted either to the Faculty of Graduate Studies Interdisciplinary PhD program or the Faculty of Engineering Biomedical Engineering PhD program. Prospective students may be eligible for funding through scholarship programs at NSERC, SSHRC, CIHR, or from the Nova Scotia Health Research Foundation (NSHRF). Dalhousie University does not currently offer a PhD program in occupational therapy. For further information, please contact the Graduate Coordinator.

III. Course Descriptions

The School does not currently offer an undergraduate degree.

We offer undergraduate courses for continuing professional development, refresher education and to advance one’s knowledge of occupational science. Not all courses are offered each year. Please contact the School for the current course offerings and enrollment in single course.

OCCU 2000.03: Occupation and Daily Life.

This introductory course for students in arts, social sciences, science and other fields is designed to explore the meaning of occupation in everyday life. Typically, the term “occupation” refers to categories of paid work. This course will explore a broader meaning of occupation: namely, purposeful activity. This concept of occupation will include everything we do to look after and develop ourselves, be involved in meaningful endeavours, contribute to our communities, promote health, advocate for opportunities, generate income and more. Students will be exposed to a broad range of literature on occupation; the motivation, organization and performance of occupation; the environment as a context for occupational performance; and the promotion of health through occupation. Students will gain an appreciation of occupation as the foundation of everyday life through sociological, anthropological and narrative analysis, and experiential activities.

PREREQUISITE: None. This course is OPEN to non-Occupational Therapy students

OCCU 2207.03: Occupational Development Across the Life Span.

Theories and processes that explain the complexity and dynamics of occupational development across the lifespan are introduced. The course explores typical patterns of physical, cognitive, and psychosocial development and their occupational implications, as well as contexts for occupational development including roles and environments.

PREREQUISITE: Instruc. permission

OCCU 4402.03: Program Design and Evaluation for Enabling Occupation.

This course enables students to critically assess, plan and design an evaluation for occupational therapy programs in a variety of settings. Students will be provided with the basic knowledge and skills of: strategic planning; program development; resource management; and program evaluation. As part of this course, students will complete a novice consulting project. This project will provide students with the opportunity to explore the provision of occupational therapy in a non-traditional setting.

PREREQUISITE: Instruc. permission

OCCU 4420.00: Fieldwork III.

This eight week fieldwork placement introduces students to occupational therapy practice outside the Atlantic region. There are a limited number of opportunities for International options outside Canada and expanded fieldwork with an off-site occupational therapist preceptor within Atlantic Canada. Students develop competence and increased independence in integrating theoretical knowledge and skills through the full process of Occupational Therapy practice. Under supervision, students assume responsibility for a case load of approximately 40-60% of that of an entry level therapist. All expenses are the responsibility of the student including a placement fee, travel, accommodations, etc.

PREREQUISITE: Instruc. permission

OCCU 4422.00: Fieldwork Level III (Continued).

During this six week fieldwork experience students focus on refining professional competencies and seeking new challenges with minimum guidance from a preceptor. Students are expected to develop the capacity to carry 75% or more of the responsibilities of an entry level occupational therapist by the completion of this fieldwork education placement.

PREREQUISITE: Instruc. permission

OCCU 4423.00: Fieldwork Level IV.

This six week fieldwork placement provides experience in setting up and managing an independent occupational therapy practice in a non-traditional setting. Students are expected to develop the capacity to carry 100% of the responsibilities of an entry level occupational therapist by the completion of this fieldwork education placement.

PREREQUISITE: Instruc. permission

OCCU 4424.00: Fieldwork Level V.

This eight week fieldwork placement provides students with the opportunity to work in settings such as a hospital, long-term care facility, or community agency. Students develop competence and increased independence in integrating theoretical knowledge and skills through the full process of Occupational Therapy practice. Under supervision, students assume responsibility for a case load of approximately 40-60% of that of an entry level therapist. All expenses are the responsibility of the student including a placement fee, travel, accommodations, etc.

PREREQUISITE: Instruc. permission

OCCU 4425.00: Fieldwork Level VI (Continued).

This experiential course for students in arts, social sciences, science and other fields is designed to explore the meaning of occupation in everyday life. Typically, the term “occupation” refers to categories of paid work. This course will explore a broader meaning of occupation: namely, purposeful activity. This concept of occupation will include everything we do to look after and develop ourselves, be involved in meaningful endeavours, contribute to our communities, promote health, advocate for opportunities, generate income and more. Students will be exposed to a broad range of literature on occupation; the motivation, organization and performance of occupation; the environment as a context for occupational performance; and the promotion of health through occupation. Students will gain an appreciation of occupation as the foundation of everyday life through sociological, anthropological and narrative analysis, and experiential activities.

PREREQUISITE: None. This course is OPEN to non-Occupational Therapy students

OCCU 4426.00: Fieldwork Level VII (Continued).

This twelve week fieldwork placement provides experience in setting up and managing an independent occupational therapy practice in a non-traditional setting. Students are expected to develop the capacity to carry 100% of the responsibilities of an entry level occupational therapist by the completion of this fieldwork education placement.

PREREQUISITE: Instruc. permission

OCCU 4427.00: Fieldwork Level VIII.

This twelve week fieldwork placement is designed to culminate students’ education in occupational therapy practice. Under supervision, students assume responsibility for a case load of approximately 100% of that of an entry level therapist. All expenses are the responsibility of the student including a placement fee, travel, accommodations, etc.

PREREQUISITE: Instruc. permission
I. History

Formal pharmacy education in the Maritime provinces began in 1908, with evening classes in pharmacy and chemistry conducted in the Nova Scotia Technical College. Success of these courses encouraged the Nova Scotia Pharmaceutical Society to establish the Nova Scotia College of Pharmacy in 1911. The College was affiliated with Dalhousie University in 1912.

The New Brunswick Pharmaceutical Society and the Prince Edward Island Pharmaceutical Association were admitted to affiliation with the College in 1917 and 1930, respectively. With the affiliation of the former society, the College was renamed the Maritime College of Pharmacy.

In 1961, the Maritime College of Pharmacy was admitted into Dalhousie University as the College of Pharmacy, a constituent part of the new Faculty of Health Professions. A four-year baccalaureate program was introduced.

In 1966, a Master’s program was established, followed by a Doctor of Philosophy program in 1977.

In 1972, a twelve month pharmacy residency program was initiated by Camp Hill Hospital in cooperation with the College of Pharmacy. Programs were initiated at the Halifax Infirmary in 1974, at the Victoria General Hospital in 1981 and at the Saint John Regional Hospital in 1982.

In 1975, the Prince Edward Island Pharmaceutical Society to establish the Nova Scotia College of Pharmacy in 1911. The College was affiliated with Dalhousie University in 1912. In 1961, the Maritime College of Pharmacy was admitted into Dalhousie University as the College of Pharmacy, a constituent part of the new Faculty of Health Professions. A four-year baccalaureate program was introduced.

In 1966, a Master’s program was established, followed by a Doctor of Philosophy program in 1977.

In 1972, a twelve month pharmacy residency program was initiated by Camp Hill Hospital in cooperation with the College of Pharmacy. Programs were initiated at the Halifax Infirmary in 1974, at the Victoria General Hospital in 1981 and at the Saint John Regional Hospital in 1982.

In the fall of 1968, the College of Pharmacy moved into the George A. Burbidge Pharmacy Building. This building, the former Medical Sciences Building was renamed in honour of the first Dean of the College, in recognition of his contribution to pharmacy education in the Maritimes. Present facilities accommodate approximately 360 undergraduate students.

II. College of Pharmacy Mission Statement

Mission

Enhancing health through pharmaceutical education, community service and research.

Vision

The College of Pharmacy is a leader in practice-based pharmacy education and is respected for pharmacy research. The College is also a major enabler in advancing the practice of pharmacy.

We are highly responsive to patient-needs and changes in the health care environment. Our graduates are well prepared to become effective practitioners, researchers and future leaders.
Accreditation
The Bachelor of Science in Pharmacy Program of the College of Pharmacy, Dalhousie University, has been granted Full Accreditation Status by the Canadian Council for Accreditation of Pharmacy Programs for a six year term, 2010-2016.

III. College of Pharmacy Regulations
All students are required to observe the University Regulations and Academic Regulations as described in this Calendar. The academic performance of each student in the College is assessed by the Student Promotions Committee.

A. Academic Requirements

1. Workload
The curriculum is a problem-based learning (PBL) program and other courses, which may include tutorials, lectures, labs, practice experience and other components. (See IV. Programs offered). To satisfy the requirements for the degree of Bachelor of Science in Pharmacy, a student must achieve a grade of Pass in each prescribed component. PBL courses vary in length from three to seven weeks, and are weighted as either 1.5, 3, or 6 credit hours. Each academic year totals 27, 31.5, or 33 credit hours, with the program total being 123 credit hours.

Students are required to successfully complete all practice experience rotations. These placements may be outside the Halifax/Dartmouth area. Students are responsible for any travel, accommodation and any other costs associated with practice experience rotations.

2. Academic Recognition

1. Awards
The College of Pharmacy Awards Committee administers a number of awards, each with defined criteria. Selection of award recipients described as the “student who excels” is based on a combination of performance in knowledge assessments and in tutorials. Eligibility for in-course Scholarships is determined on the basis of knowledge assessments alone.

2. Dean’s List
Students will be assessed for Dean’s List based on their knowledge assessments and class standing in the annual “Progress Exam.” No student who has obtained a failing grade (F) will be eligible for the Dean’s List in the year in question.

3. Distinction
Students who have been on the Dean’s List for three of the four years of the Pharmacy Program and a cumulative GPA of 3.70 or higher will graduate with Distinction.

C. Assessment

1. Grading
Grading is on a Pass/Fail basis, and grades recorded on the official University transcript are “Pass” or “Fail” (P, F). Students must pass all components of the year in which they are registered to proceed to the next year. The passing grade for knowledge assessments is 60% unless otherwise indicated.

2. Formal Assessment
Assessment will be based on both the learning process and the knowledge/skills achieved. Tutors will provide informal assessment of the student’s learning process throughout a PBL course and a formal assessment (student tutorial performance assessment) at the completion of a course. Knowledge/skills will be assessed as described in the syllabus provided for each course.

3. Remedial Work
If a PBL course, a student must pass both the student tutorial performance assessment and the course knowledge assessment.

4. A student who fails an academic course must meet with the Associate Director, Undergraduate Education to discuss remediation and/or support.

5. The Student Promotions Committee of the College of Pharmacy is responsible for monitoring the academic progress of students and providing recommendations to faculty regarding promotion and graduation of students. Students who seek advice for the application of the regulations of the College of Pharmacy should refer to the appeals process described in Appeals section below.

6. Attendance at the tutorials, skills laboratory and practice experience program (PEP) is mandatory. Absence must be supported with a valid reason, such as illness with a medical certificate or other reason approved by the Undergraduate Education Committee. Other absence will be reported to the Student Promotions Committee and may be reason for failure.

D. Reassessment of a Grade
See Academic Regulation 16.7. In all cases of reassessment, the calculations used to arrive at the final grade will be checked. In those courses where the student has had ample time to consider marks obtained for all work done, except for the final examination, reassessment in such courses shall be done on the final examination only. For other courses, a reassessment shall include the results from all work not previously available to the student during the term.

E. Supplemental Assessment

1. A student who receives a grade of F in no more than one course is eligible for remedial work and supplemental assessment.

2. A student who fails one PBL student tutorial performance assessment must undertake remedial work during the following course, organized by the Associate Director, Undergraduate Education. If the failure occurs in the final course of the year, remediation will occur during the summer. The student must successfully complete the remedial work and supplemental assessment to achieve a Pass.

3. A student who fails the knowledge/assessment or other requirement outlined in the syllabus of a PBL or non-PBL course will be required to do remedial work and must pass a supplemental assessment, which will be scheduled by the course coordinator in consultation with the Associate Director, Undergraduate Education and the students involved.

4. If a student successfully completes the remedial work and supplemental assessment, the passing grade will then be added to the transcript and recorded as “P” with a notation that the grade was earned by supplemental assessment.

5. Failure in a second course (either a PBL or non-PBL course) will result in a fail grade that may have been achieved by supplemental assessment in the first failed course. (See F.1.a below.)

F. Repeating the Year

1. Subject to eligibility, a student will be required to repeat the year if:
   a) the student has failed any two courses (PBL or non-PBL courses) or
   b) the student has failed one course and has not successfully completed the prescribed remedial work and supplemental assessment.

2. To be eligible to repeat a year, a student who has failed two courses must satisfactorily complete all other year requirements except the Practice Experience Program. However, a student with two failures will not be eligible to register in the Practice Experience Program.

3. Application to repeat the year must be made in writing to the Associate Director, Undergraduate Education by a predetermined date.

4. Any student who withdraws voluntarily, due to illness or other personal circumstances, and is allowed to repeat the year, will be considered a student in a repeat year unless the student withdraws before the last day of the first PBL course of the academic year, or the student tutorial performance assessment, if the two do not coincide.

5. No student will be allowed more than one repeat year during the undergraduate program. All students who repeat the year will be assessed on performance in the repeated year.

G. Leave of Absence
A student who needs to take leave from the pharmacy program must apply to the Director to do so. A leave of absence must be approved in advance by the Director of the College of Pharmacy. Normally, a student who absents himself/herself from the College of Pharmacy without prior permission for an extended period (four weeks or greater) will be presumed to have withdrawn and will have to re-apply for admission to the College of Pharmacy. A leave of absence will be limited to one leave period and will not normally exceed one academic year. A leave of absence will not count towards time in the Pharmacy program.

H. Dismissal from the Study of Pharmacy

1. Any student who fails two or more courses (PBL or non-PBL courses) of the curriculum in one year will be dismissed from the study of pharmacy.

2. A student in a repeat year who does not meet the criteria for promotion will be dismissed. The normal regulation allowing remedial work and supplemental assessment in one course will apply.

3. Students are also referred to University Regulations: Suspension or Dismissal from a Program on the Grounds of Professional Unsuitability - Faculty of Health Professions.
Faculty of Health Professions

Pharmacy under the control of the provincial regulatory authority concerned; a period of related to licensing or to registration as a Pharmacist. These functions are entirely. The College of Pharmacy, being purely educational, has no jurisdiction in matters related to licensing or registration as a Pharmacist. For those who wish to practice as licensed pharmacists. A Bachelor of Science in Pharmacy is necessary for those who wish to practice as licensed pharmacists. Failure to provide this information may result in a student being denied access to a placement site. Each student is required to maintain their personal immunization record, and submit a copy by a set deadline for their student file. Individual sites may require students to present immunization records prior to acceptance at a practice site. Individual clinical practice sites may have additional immunization requirements. Students must show proof of current immunization against tetanus, diphtheria, pertussis, polio, measles, mumps, rubella, Hepatitis B, varicella (if non-immune) and a negative two-step Mantoux (TUB) test prior to admission to the College. Evidence of a negative two-step tuberculin testing (Mantoux) is required before all hospital rotations. Students are responsible for the cost of all tests and immunizations.

A. Immunization

B. Career Opportunities

Pharmacy is a health profession in which pharmacists provide care for their patients as one member of the health care team. This care focuses on the patient for the appropriate use and prescription of drug therapies. The pharmacist is responsible to prevent and resolve patient drug therapy problems. Specific activities include: taking medication histories, identifying goals for drug therapy, providing recommendations and education to patients regarding self-medication, providing recommendations to other health care providers on drug therapy, working with patients to maximum benefit and minimize adverse effects of drug therapy, monitoring patient drug profiles, counseling patients on prescribed medication, monitoring drug interactions, adverse drug reactions and patient compliance with their drug treatment. Other activities include the provision of information on drugs to patients and other health professionals, the preparation of suitable materials for use as medicines from natural and synthetic sources, the compounding of drugs and the dispensing of suitable medication. Pharmacy graduates have a wide range of career opportunities. The majority enter community pharmacy practice. Hospital pharmacy also provides an interesting challenge for pharmacists, particularly in view of their expanding role within the clinical setting. The pharmaceutical industry provides opportunities for pharmacists in analytical laboratories and in administrative positions as consultants, government inspectors and health officers. Opportunities may also be available in universities as teachers and researchers. A Bachelor of Science in Pharmacy is necessary for those who wish to practice as licensed pharmacists. For those who wish to enter research or teaching, a Master of Science degree and the Master of Science degree is usually required. Practice Requirements

1. License in Pharmacy

The College of Pharmacy, being purely educational, has no jurisdiction in matters related to licensing or registration as a Pharmacist. These functions are entirely under the control of the provincial regulatory authority concerned; a period of practical training or apprenticeship is required by the provincial regulatory authority before a graduate in pharmacy is licensed as a pharmacist. Information regarding licensing or registration in each province may be obtained from the respective provincial regulatory authority. New Brunswick Pharmaceutical Society, Unit 69, 1224 Mountain Road, Moncton, NB E1C 2T6; Prince Edward Island Pharmacy Board, PO Box 89, Crapaud, PE C0A 1C0; Nova Scotia College of Pharmacists, Suite 200, 1559 Brunswick Street, Halifax, NS B3J 2G1.

2. Pharmacy Examining Board of Canada (PEBC)

The Pharmacy Examining board of Canada was created by Federal Statute on December 21, 1961, to establish qualifications for pharmacists acceptable to participating pharmacy provincial regulatory authorities. The Board provides for annual examinations and issues a certificate to the successful candidate, which may be filed with a Canadian provincial regulatory authority in connection with an application for license to practice pharmacy under the laws of that province. Graduates of Faculties of Pharmacy accredited by Examinations of Pharmacy Programs are eligible to write the examinations. Successful completion of these examinations is a prerequisite to licensure in Canada. Individuals who are not graduates of an accredited Canadian Faculty of Pharmacy must first complete the PEBC Qualifying Exam.

D. Student Pharmacy Society

The basic aims of the Student Pharmacy Society are to promote a closer liaison with the other societies on campus, to give the pharmacy students a strong voice with regard to Student Council activities, to provide a means of communications between students and their respective provincial regulatory authorities in the Maritimes, and to provide an organizational body which plans and finances the various unique Pharmacy Society activities. Membership in the Pharmacy Society includes membership in the Canadian Association of Pharmacy Students and Intern and membership in the Canadian Pharmacists Association.

V. Programs Offered

The College of Pharmacy offers a four-year program, following at least one year of general science, leading to the degree of Bachelor of Science (Pharmacy). The undergraduate program has a patient-oriented curriculum integrating clinical pharmacy with the pharmaceutical sciences. The curriculum includes an integrated problem-based learning format. Year 1 includes pharmacy law and health care ethics, biomedical and physical sciences (anatomy, biochemistry, microbiology, pharmacology and physiology) in discrete three-to seven-week courses. The pharmaceutical sciences (biopharmaceutics and pharmacokinetics, medicinal chemistry, drug metabolism, toxicology, pharmacokinetics and physical pharmacy) with necessary reviews of biomedical content, are integrated in Year 2 through 4, with therapeutics, pharmacoeconomics, pharmacoeconomics, pharmacoeconomics, communications, interprofessional relations, law and ethics, social and administrative pharmacy issues, and the role of pharmacy in the health care system. The College participates with the Queen Elizabeth II Health Science Centre, Halifax, NS, and the Horizon Health Network, NS in providing a Canadian Hospital Pharmacy Residency Board accredited twelve-month post graduate hospital pharmacy residency program. Through structured rotations in various areas of pharmacy practice, the program aims to prepare pharmacists for exemplary pharmacy practice. Areas of rotation include patient care, drug information, drug distribution, pharmacy administration, a research project and in-service and education. The emphasis is on providing exemplary patient care. Practitioner role models/preceptors are utilized throughout the program to mentor the necessary skills, knowledge and values required to be a pharmacist for application by the resident. A stipend is provided and a certificate is presented to candidates successfully completing the program.

Undergraduate Curriculum Structure

The PBL curriculum, within the College of Pharmacy, may be scheduled past the posted exam periods. Students are responsible for all costs associated with expenses during this time (i.e., meal plan expiration, residence closure, etc.).
A. Tutorials
The principal feature of the curriculum is problem-based learning (PBL). Students learn together in tutorial groups of eight to ten. Each group is facilitated by a trained non-content expert tutor who may be faculty, sessional tutors, practitioners or graduate students. Two-hour tutorials are held three times a week. In tutorial sessions students are presented with a situation for which they must identify their own prior knowledge and set specific learning objectives. Students use the time between tutorial sessions for self-directed learning of the objectives that they have set. Subsequent tutorials consist of discussion and application of knowledge.

B. Courses
A minimal number of courses explain difficult concepts and summarize learning modules. Science laboratory sessions are limited to experiments and demonstrations that enhance student learning of concepts.

C. Skills Laboratory
The skills laboratory focuses on practical skill development and application of knowledge acquired in the PBL curriculum and critical appraisal series. Activities required for successful completion of the practical experience program are introduced and practiced. Content includes but is not limited to: extemporaneous compounding, prescription filling and assessment, written and verbal communication skills, patient education, device training, injection training, and jurisprudence.

D. Practice Experience Program (PEP)
A progressive professional field experience complements the PBL curriculum as follows:

**Year 1 - Community Experience Program (CEP)**
- the equivalent of a half day per week in a goal-related service learning in a non-pharmacy health-oriented community site.

**Year 2 - Practice Experience Program (PEP)**
- PHAR 2062.03 - Community Rotation (two consecutive weeks)
- PHAR 2082.03 - Community Rotation (two consecutive weeks)

Second year rotations are completed during the months of May - August, after successful completion of all other second year courses. Each rotation is two weeks in length, at a minimum of 35 hours/week. Second year rotations provide students with an opportunity to see pharmacists practice patient focused care in both community and hospital practice settings. Time is also spent on the distributive, legislative and administrative components of pharmacy practice.

**Year 3 - Practice Experience Program (PEP)**
- PHAR 3080.03 - Community Rotation (four consecutive weeks)

This rotation is completed during the months of May - August, after successful completion of all other third year courses. This rotation is four weeks in length at a minimum of 35 hours/week and introduces students to the practical application of the pharmacist’s patient care process in a community pharmacy. Rotation objectives address drug information, prescription and non-prescription medications, patient education, and health promotion presentations to community groups. This rotation is intended to provide an introductory experience to clinical activities including: monitoring patients, identifying drug-related problems, and defining and measuring patient goals and outcomes.

**Year 4 - Practice Experience Program (PEP)**
- PHAR 4080.045 - Hospital Rotation (six consecutive weeks)
- PHAR 4085.045 - Community Rotation (six consecutive weeks)

These six-week rotations are the culmination of the student's study. Experiential rotations in hospital and community practice sites allow students the opportunity to apply all the knowledge, skills and values they have developed to the provision of total pharmacy care. The focus of these rotations is patient-based and primarily clinical. Each rotation is six-weeks, at a minimum of 40 hours/week.

For each rotation, from year 2 through to year 4, students are required to travel to sites outside of the Halifax area and will be responsible for any costs incurred as a result of the program.

Students should note that there are very limited PEP rotation sites outside the Maritime Provinces. All PEP rotations must take place within Canada. Students must be prepared to complete all PEP rotations within the Maritimes.

E. Prescribed Courses

**Year 1**
- PHAR 1010.03
- PHAR 1020.03
- PHAR 1030.03
- PHAR 1040.03
- PHAR 1050.03
- PHAR 1060.03
- PHAR 1070.03
- PHAR 1090.00
- PHYL 1480.06

**Year 2**
- PHAR 2010.03
- PHAR 2020.03
- PHAR 2035.06
- PHAR 2040.03
- PHAR 2045.03
- PHAR 2050.03
- PHAR 2055.015
- PHAR 2060.03
- PHAR 2070.03
- PHAR 2081.03
- PHAR 2082.03

**Year 3**
- PHAR 3010.03
- PHAR 3020.03
- PHAR 3030.03
- PHAR 3040.06
- PHAR 3050.03
- PHAR 3055.06
- PHAR 3060.03
- PHAR 3070.03
- PHAR 3080.03
- PHAR 3085.03

**Year 4**
- PHAR 4010.03
- PHAR 4025.06
- PHAR 4045.03
- PHAR 4060.03
- PHAR 4070.03
- PHAR 4080.03
- PHAR 4085.03

F. Interprofessional Health Education
Students are required to maintain enrolment in IPHE 4900.00 (see calendar section on Health Professions, Interprofessional Health Education) for the duration of their studies. Please register in IPHE 4900.00 (section 5). Successful completion of this course is a requirement for graduation and will be recognized further with the awarding of a special Certificate in Interprofessional Collaboration to be presented by the Faculty of Health Professions. Students are asked to consult with their individual school colleges to determine the specific guidelines and expectations regarding the required portfolio.

VI. Course Descriptions
ANAT 1040.03: Basic Human Anatomy for Pharmacy Students.
This course is offered by the Department of Anatomy and Neurobiology to students in the College of Pharmacy. Upon successful completion of the class, the
PHAR 1060.015: Pharmacy Law and Health Care Ethics.
This course provides an introduction to the legal and ethical aspects of pharmacy practice, focusing on the legal and ethical implications of patient care. Students will learn about the legal and ethical principles that govern the practice of pharmacy and the responsibilities of pharmacists. The course will cover topics such as patient confidentiality, prescription practices, and the legal requirements for the dispensing of pharmaceutical products. Coordinators: J. McDougall and J. Pelisi.

PHAR 1060.03: Pharmacy Skills Lab I.
Students will have the opportunity to practice and develop their skills in pharmacy practice through hands-on experiences in a simulated pharmacy setting. The lab aims to provide students with the opportunity to apply theoretical knowledge to practical situations. Coordinators: S. Mansour.

PHAR 1060.06: Biological Chemistry and Metabolism for Students of Pharmacy.
The course focuses on the biochemical processes that occur in the human body, with an emphasis on the role of medicines in these processes. Students will learn about the mechanisms of drug action and the principles of pharmacokinetics and pharmacodynamics. Coordinators: L. Walker and J. McDougall.

PHAR 1070.01: Pharmacology for Pharmacy.
This course provides an introduction to the mechanisms of drug action and the principles of pharmacokinetics and pharmacodynamics. Students will learn about the principles of drug therapy and the evaluation of drug therapy. Coordinators: N. Harris.

PHAR 2010.03: Critical Appraisal Series I.
This course is designed to provide students with the skills necessary to critically appraise the literature in the field of pharmacy. Students will learn how to evaluate research studies and how to use this information to inform their practice. Coordinators: S. Mansour.

PHAR 2020.03: Respiratory Tract Complaints.
This course focuses on respiratory tract complaints, their diagnosis, and management. Students will learn about the common respiratory tract disorders, their causes, and the appropriate treatment options. Coordinators: S. Mansour.

PHAR 2035.06: Respiratory Tract Complaints.
This course is designed to provide students with an overview of respiratory tract complaints and their management. Students will learn about the common respiratory tract disorders, their causes, and the appropriate treatment options. Coordinators: S. Mansour.

PHAR 2035.08: Respiratory Tract Complaints.
This course is designed to provide students with an overview of respiratory tract complaints and their management. Students will learn about the common respiratory tract disorders, their causes, and the appropriate treatment options. Coordinators: S. Mansour.

PHAR 2040.03: Gastrointestinal Disorders.
This course focuses on gastrointestinal disorders, their diagnosis, and management. Students will learn about the common gastrointestinal disorders, their causes, and the appropriate treatment options. Coordinators: S. Mansour.

PHAR 2045.015: Nutrition.
This course is designed to provide students with an overview of nutrition and its role in health and disease. Students will learn about the principles of nutrition, the role of nutrients in health and disease, and the methods for assessing nutritional status. Coordinators: S. Mansour.

PHAR 2055.015: Drug Disposition.
The course is designed to provide students with an overview of drug disposition, including the principles of pharmacokinetics and pharmacodynamics. Students will learn about the factors that influence drug disposition and how these factors are used in the development of drug therapy. Coordinators: S. Mansour.

PHAR 2080.00: Community Experience Program.
This course provides students with an opportunity to apply their knowledge and skills in a real-world community setting. Students will work as part of a multidisciplinary team in a community health organization to provide pharmacy services to the community. Coordinators: N. Harris.

PHIC 1050.03: Basic Microbiology and Immunology for Pharmacy.
This course provides an introduction to the principles of microbiology and immunology as they relate to the practice of pharmacy. Students will learn about the diagnostic tests used in pharmacy, the role of microorganisms in disease, and the principles of immunology. Coordinators: S. Mansour.

PHIC 1100.06: Pharmacology and Pathophysiology.
This course focuses on the mechanisms of drug action and the principles of pharmacokinetics and pharmacodynamics. Students will learn about the principles of drug therapy and the evaluation of drug therapy. Coordinators: E. Credman.
PHAR 2060.015: Medication Use Management.
This course introduces the pharmacy student to the "big picture" issues of the medication-use system. The three parts of the course are as follows: (1) an overview of the medication-use system, (2) discussion of the problems with the medication-use system and (3) exploration of potential solutions to these problems.
COORDINATOR: A. Murphy
FORMAT: Lecture, small group work, self-directed learning, approx. 27 hrs. 3 weeks
PREREQUISITE: Successful completion of all first year pharmacy.

PHAR 2070.03: Pharmacy Skills Lab II.
Skills Lab II expands upon the skills earned in Skills Lab I. Students are introduced to the Dalhousie College of Pharmacy’s Patient Care Process. Written and verbal communication skills and patient assessment techniques are taught to support this process. Students learn to identify drug therapy problems and develop therapeutic management and monitoring plans. Knowledge obtained in the Problem Based Learning (PBL) and Critical Appraisal Series (CAS) components of the program are applied. Students will examine social, ethical and professional practice issues. Successful completion of a courtroom presentation (CPP) level I HCP and standard first aid course is a requirement for a passing grade.
COORDINATOR: N. Kenne-Kelchbaur
FORMAT: Lecture lab - 4 hours
PREREQUISITE: Successful completion of all first year courses

PHAR 2081.03: Practice Experience Program (PEP) I.
This rotation provides students with an opportunity to see patient centered pharmacy care in a hospital practice setting. Specic speci c units focus on drug information, hospital pharmacy services provided as part of the healthcare team, sterile procedures and IV admixtures, medication safety, and interprofessional collaboration. Students are required to travel to sites outside the Halifax area and are responsible for all associated costs.
COORDINATOR: H. Davies
FORMAT: Minimum 35 hours/week x 2 consecutive weeks (May-Aug)
PREREQUISITE: Successful completion of second year courses (see College of Pharmacy Regulations F2)

PHAR 2082.03: Practice Experience Program (PEP) II.
This rotation provides students with an opportunity to participate in patient care in a community pharmacy setting. Pharmacy law, narcotics and controlled drugs, third party insurance, processing prescriptions, provincial formularies, drug information and systems management are key areas of this rotation. This rotation provides students with an opportunity to participate in patient care in a community pharmacy setting. Students are required to travel to sites outside the Halifax area and are responsible for all associated costs.
COORDINATOR: H. Davies
FORMAT: Minimum 35 hours/week x 2 consecutive weeks (May-Aug)
PREREQUISITE: Successful completion of second year courses (see College of Pharmacy Regulations F2)

PHAR 3010.03: Critical Appraisal Series II.
This course advances and reinforces the topic learned in PHAR 2010.03. The first term focuses on research methods and biostatistics seen in various trial designs. Students will critically evaluate the medical literature and write a term paper reviewing the evidence behind a clinical decision. The second term will focus on applying the elements of evidence-based clinical practice. Through a journal club setting, students will evaluate the strength and weaknesses seen in the literature as they relate to a clinical situation. Students are expected to use these skills in their problem-based learning courses.
COORDINATOR: D. Gauthier
FORMAT: Lecture and small group work – 2 hours
PREREQUISITE: PHAR 2010.03 or consent of instructor

PHAR 3020.03: Women’s Health Issues.
Students learn the medicinal chemistry, pharmacokinetics, biopharmaceutics and pharmacokinetics, and pharmacology, as well as the pathophysiology and pharmacotherapeutic principles pertaining to the problems and products discussed. PHAR 3020.03 deals with common women’s health issues such as contraception, osteoporosis and menopause and the management of these problems.
COORDINATOR: H. Deal
FORMAT: Lecture 3-5 hours, tutorial 6 hours
PREREQUISITE: Successful completion of all second year courses

PHAR 3030.03: Infectious Diseases.
This rotation focuses on the practical implementation of patient centered pharmacy care in community practice. Students will complete a variety of patient care work-sites. Provision of drug information, prescriptions and non-prescription medications, patient education and health promotion are integral components of this rotation. Students are required to travel to sites outside the Halifax area and are responsible for all associated costs.
COORDINATOR: H. Deal
FORMAT: Minimum 35 hours/week x 4 consecutive weeks (May-Aug)
PREREQUISITE: Successful completion of third year courses (see College of Pharmacy Regulations F2)

PHAR 3040.06: Cardiovascular Diseases.
Students learn the medicinal chemistry, pharmacokinetics, biopharmaceutics and pharmacokinetics, and pharmacology, as well as the pathophysiology and pharmacotherapeutic principles pertaining to the problems and products discussed. PHAR 3040.06 covers cardiovascular diseases such as hypertension, ischemic heart disease, congestive heart failure and thrombembolism, and the pharmacologic management of these conditions.
COORDINATOR: H. Deal
FORMAT: Lecture 5-6 hours, tutorial 6 hours
PREREQUISITE: Successful completion of all second year courses

PHAR 3050.03: Pain and Rheumatology.
Students learn the medicinal chemistry, pharmacokinetics, biopharmaceutics and pharmacokinetics, and pharmacology, as well as the pathophysiology and pharmacotherapeutic principles pertaining to the problems and products discussed. PHAR 3050.03 deals with the understanding and management of acute and chronic pain of various origins.
COORDINATOR: H. Deal
FORMAT: Lecture 5-6 hours, tutorial 6 hours
PREREQUISITE: Successful completion of all second year courses

PHAR 3055.06: CNS and Behavioral Disorders.
Students learn the medicinal chemistry, pharmacokinetics, biopharmaceutics and pharmacokinetics, and pharmacology, as well as the pathophysiology and pharmacotherapeutic principles pertaining to the problems and products discussed. PHAR 3055.06 involves the study of an array of conditions ranging from depression to seizure disorders.
COORDINATOR: H. Deal
FORMAT: Lecture 5-6 hours, tutorial 6 hours
PREREQUISITE: Successful completion of all second year courses

PHAR 3060.03: Endocrine Disorders.
Students learn the medicinal chemistry, pharmacokinetics, biopharmaceutics and pharmacokinetics, and pharmacology, as well as the pathophysiology and pharmacotherapeutic principles pertaining to the problems and products discussed. Disorder included in PHAR 3060.03 are diabetes and thyroid conditions.
COORDINATOR: H. Deal
FORMAT: Lecture 5-6 hours, tutorial 6 hours
PREREQUISITE: Successful completion of all second year courses

PHAR 3070.03: Pharmacy Skills Lab III.
Skills Lab III expands on the concepts learned in skills lab I and II. An added emphasis will be placed on written communication skills and prescription therapeutics as covered in the PBL curriculum. Students are expected to use Knowledge from CAS for the purposes of therapeutic-decision making and patient education. Lectures and device training will compliment the PBL curriculum. Standardized patients will be used for teaching purposes as well as for the final objective structured clinical exam.
COORDINATOR: K. Spanjol
FORMAT: Lecture/lab seminar - 4 hours
PREREQUISITE: Successful completion of all second year courses

PHAR 3080.03: Practice Experience Program (PEP) III.
This rotation focuses on the practical implementation of patient centered pharmacy care in community practice. Students will complete a variety of patient care work-sites. Provision of drug information, prescriptions and non-prescription medications, patient education and health promotion are integral components of this rotation. Students are required to travel to sites outside the Halifax area and are responsible for all associated costs.
COORDINATOR: H. Deal
FORMAT: Minimum 35 hours/week x 4 consecutive weeks (May-Aug)
PREREQUISITE: Successful completion of third year courses (see College of Pharmacy Regulations F2)

PHAR 3080.015: Medication Use Management.
This course introduces the pharmacy student to the "big picture" issues of the medication-use system. The three parts of the course are as follows: (1) an overview of the medication-use system, (2) discussion of the problems with the medication-use system and (3) exploration of potential solutions to these problems.
COORDINATOR: A. Murphy
FORMAT: Lecture, small group work, self-directed learning, approx. 27 hrs. 3 weeks
PREREQUISITE: Successful completion of all first year pharmacy.

PHAR 3090.03: Pain and Rheumatology.
Students learn the medicinal chemistry, pharmacokinetics, biopharmaceutics and pharmacokinetics, and pharmacology, as well as the pathophysiology and pharmacotherapeutic principles pertaining to the problems and products discussed. PHAR 3090.03 is devoted to musculoskeletal infections.
COORDINATOR: H. Deal
FORMAT: Lecture 5-6 hours, tutorial 6 hours
PREREQUISITE: Successful completion of all second year courses
PREREQUISITE: successful completion of fourth year classes (see College of Pharmacy Regulation F2)

This clinical rotation focuses primarily on the practical provision of patient centered pharmacy care in community practice. As with the hospital rotation, students will apply the knowledge, skills and values that have been acquired throughout academic study and previous PEP rotations using a patient-centered approach. Interaction with family physicians and other healthcare professionals in the community is a key component of this rotation. Students should have the opportunity to interact with patients in the physician’s office, pharmacy and/or home environment. Students will serve as a member of the healthcare team and incorporate professionalism, ethical principles, drug information, patient education and health promotion in the application of patient focused pharmacy care. Students will be required to complete full patient care work-ups on several patients and present the cases to a health professional audience. Students will expand their educational role by preparing and presenting a relevant health promotion/disease prevention topic to a community audience. Students are required to travel to sites outside the Halifax area and are responsible for all associated costs.

COORDINATOR: H. Davies

FORMAT: Minimum 40 hours/week x 6 consecutive weeks (first or second rotation in 4th year, second term)

PREREQUISITE: Successful completion of fourth year classes (see College of Pharmacy Regulation F2)

PHYL 1400.06: Human Physiology.

This course is designed to give Pharmacy students a broad understanding of the normal human physiology using pathophysiologic scenarios. Selected topics in physiology and biophysics will be presented in tutorials as case studies and in lectures. The central themes include: respiratory, endocrine/reproductive, gastrointestinal, neuromuscular, nervous system, renal and cardiovascular. Students will be provided with means for self-evaluation throughout the unit. Evaluation will be based on tutorial performance as well as mid- and end-of-unit examinations. This class is only for Pharmacy students.

DIRECTOR: M. Murphy and other staff members

FORMAT: A 7-week comprehensive unit with 6 hours tutorial and 4 hours lecture per week

PREREQUISITE: ANAT 1040/03

PHAR 4085.045: Practice Experience Program (PEP) V.

This clinical rotation focuses primarily on the practical provision of patient centered pharmacy care in community practice. As with the hospital rotation, students will apply the knowledge, skills and values that have been acquired throughout academic study and previous PEP rotations using a patient-centered approach. Interaction with family physicians and other healthcare professionals in the community is a key component of this rotation. Students should have the opportunity to interact with patients in the physician’s office, pharmacy and/or home environment. Students will serve as a member of the healthcare team and incorporate professionalism, ethical principles, drug information, patient education and health promotion in the application of patient focused pharmacy care. Students will be required to complete full patient care work-ups on several patients and present the cases to a health professional audience. Students will expand their educational role by preparing and presenting a relevant health promotion/disease prevention topic to a community audience. Students are required to travel to sites outside the Halifax area and are responsible for all associated costs.

COORDINATOR: H. Davies

FORMAT: Minimum 40 hours/week x 6 consecutive weeks (first or second rotation in 4th year, second term)

PREREQUISITE: Successful completion of fourth year classes (see College of Pharmacy Regulation F2)
Social Work

The School of Social Work

Location: Mona Campbell Building, Suite 3201
1459 Lehmann Street
PO Box 18000
Halifax, NS B3H 4R2

Telephone: (902) 494-3760
Fax: (902) 494-6709
Email: socialwork@dal.ca
Website: http://www.socialwork.dal.ca

Undergraduate book  Page 435  Wednesday, March 12, 2014  12:03 PM

Dean
Webster, William G., PhD

Academic Staff

Director of the School
Richard, B. K.

Associate Director
Kazubanow, J.

Professor Emeritus
Weinberg, M., BA (U of T), MSW (Smith College), PhD (U of T)

MacDonald, N., BA, BSW, MSW (Dalhousie), PhD Candidate (Dal)

Baikie, G., BSW, MSW, PhD candidate (MUN)

Assistant Professors
Richard, B. K., BA (Queen's), MA, MSW (Dalhousie)

MacDonald, J., BSW (St. Thomas), MSW (Carleton), PhD (MUN)

Campbell, C., BSc (King's), BEd, (Acadia), MSW (Carleton), PhD (MUN)

Brown, M., BA, BSW, MSW (Dalhousie), PhD (MUN)

Brown, C., BA, MA (Manitoba), MSW (Carleton), PhD (U of T)

Associate Professors
Brown, C., BA, MA (McGill), PhD (Wilfrid Laurier)

Campbell, C., BEd (King's), BEd (Acadia), MSW (Carleton), PhD (MUN)

Ungar, M., BA, BSW, MSW (McGill), PhD (Wilfrid Laurier)

Assistant Professors
Baker, G., BSW, MSW, PhD candidate (MUN)

Hambrough, C., BA (McGill), MA, PhD (U of Toronto)

MacDonald, N., BA, BSW, MSW (Dalhousie), PhD Candidate (Dal)

Adjunct Professors
Benton, W.

Campbell, S.

Crippen, M.

Drotar, N.

Giley, J.

Harbour, J.

Labadie, L.

Nolan, A.

O'Brien, M.

Perry, M.

West, E.

Agency Field Instructors

Many individuals throughout the municipality, province, and country contribute to the education of Social Work students through offering and supervising student placements. They represent a wide range of agencies and organizations including: community based, non-profit, government, physical/mental health and addiction prevention and treatment services. Their invaluable assistance is gratefully acknowledged and appreciated.

I. Introduction

The School of Social Work's vision is a commitment to building a socially just society, defined as one that upholds and validates the values of equality, diversity, inclusiveness, democracy and concern for human welfare. We manifest and advance curricula, scholarship and school culture that are congruent with these values.

The BSW degree program is accredited by the Canadian Association for Social Work Education. It embraces a critical and anti-oppressive approach to social work practice that includes an emphasis on social policy, research skills and critical analysis, professional values, theoretical perspectives and practice methods. While the program has evolved within the context of the people, communities and service network of the Maritime Provinces, graduates are qualified to practice social work throughout Canada and beyond.

A. BSW Delivery Options

The BSW is a 20 credit degree program and is offered on campus and by distance delivery online. Both delivery methods include field placement experience. The application deadline is February 15th of each year.

B. Relationship to the MSW Program

The School of Social work offers a Master of Social Work degree for advanced specialized study in social work practice. The academic prerequisite for the MSW degree is a BSW or a Bachelor's degree in a related field of study.

C. Continuing Education

The School offers a Continuing Education Program (non-credit) of thematic workshops.

D. Nova Scotia Association of Social Workers

Provincial legislation requires that only persons who are registered with the Nova Scotia Association of Social Workers (NSASW) can practice as social workers within Nova Scotia. To become fully registered and use the title of Social Worker after award of the BSW degree, at least 3,858 hours of paid supervised social work experience is necessary.

II. Bachelor of Social Work Degree Program Admission

Information on academic preparation, admission and application procedures is contained in the Admission Requirements section of the calendar. Enrolment is limited to a specified number of places that are offered once a year to the best qualified candidates, selected by the School's Admissions Committee. Equal consideration is given to part-time and full-time applications.

Prior Criminal Conviction

BSW applicants should be aware that a prior criminal conviction may render them unable to obtain a license in their field of study upon graduation, or unable to participate in some clinical field work experiences throughout their course of study.

A. Affirmative Action

The School of Social Work has an affirmative action policy for applicants who are Acadian, Aboriginal, African Canadian, members of other racially visible groups, and persons with (dis)Abilities. The school is committed to admitting and graduating the highest possible number of students who qualify under this policy. Members of these groups who have five general (non social work) university credits that average B- are encouraged to apply under this policy. Applicants may self-identify in a place provided on the Social Work Statement cover sheet, which is part of the BSW application package. Each candidate is considered individually on the basis of her/his qualifications, rather than in relation to other applicants. The admissions prerequisites and selection criteria are otherwise the same for all candidates.
B. Program Objectives

Upon successful completion of the BSW program, students will:

1. Have an understanding of equity and justice through critical analysis.
2. Develop intellectual skills, scholarly attributes, and professional characteristics and values, including but not limited to, curiosity, openness, mindfulness, effective communications, judgment, respect, humility, embracing of difference, acceptance, integrity, compassion, self-care and ethical action.
3. Develop insight into the complex, contextual, and sometimes contradictory nature of social work theory, practice, policy, ethics and research.
4. The development of practice theory and skills "required to analyze situations, establish accountable relationships, intervene appropriately with clients and related systems and evaluate one's social work interventions" (CASWE, 2007).
5. This includes an understanding of a range of life events and processes that may impact people’s development, personalities and potential.
6. Develop a critical understanding of the personal and professional “use of self.”

C. Program Requirements

The five admission credits that form the basic BSW academic prerequisite reduce the 20 degree requirements to 15 credits for all students.

Required Courses
- SLWK 2310.03: Introduction to Community Social Work
- SLWK 2311.03: Development of Canadian Social Work and Social Welfare
- SLWK 2222.03: Advancing Social Justice
- SLWK 2333.06: Beginning Social Work Practice or SLWK 2334.03/2335.03
- SLWK 3010.06: Theoretical Foundations of Social Work Practice
- SLWK 3022.01: Perspectives on Social Welfare Policy
- SLWK 3033.03: Introduction to Research Methods and Statistics
- SLWK 3044.03: Understanding Research Methods in Social Work
- SLWK 3220.03: Cross-Cultural Issues in Social Work Practice
- SLWK 4010.06: Advanced Social Work Practice
- SLWK 4030.03: Field Practicum and Seminar or SLWK 4034.03/4035.03
- Social Work Elective

Social Work elective and Field Practicum and Seminar.

Distance students are required to take SLWK 2335.03, Beginning Social Work Practice which is the second half of 2314. The course is a combination of online study in the winter term with a two week on-campus (Dalhousie, Halifax, NS) residency component in the spring session, normally in early May.

Intermediate Health Education

Students are required to maintain enrollment in IPHE 4800 (see calendar section on Health Professionals, Interprofessional Health Education) for the duration of the program. Please register in IPHE 4900-00 (section 6). Successful completion of this course is a requirement for graduation, and will be recognized further with the awarding of a special Certificate in Interprofessional Collaboration to be presented by the Faculty of Health Professions. Students are asked to consult with their individual school/collage to determine the specific guidelines and expectations regarding the required portfolio.

Because of the nature of this course, registration in IPHE 4900 does not constitute a course overload.

Transfer Credit Policy

The 15 credits may be further reduced by the amount of transfer credits for which a student is eligible. Suitable university credits that have been completed with a grade of 60 (or better) are eligible for transfer credit consideration. The following procedure guides the assignment of transfer credit:

a. A maximum of five transfer credits (30 credit hours) be awarded.

b. As a general rule, transfer credit is assigned first to Elective Courses and then to Required Courses within the BSW curriculum.

c. Transfer credit for university Social Work courses taken prior to a student’s admission to the SSW may be assigned to required courses within the BSW curriculum. For 1st- to-2nd-year students are required to submit the course outlines for these courses (calendar descriptions are not sufficient).

d. No matter where transfer credit is assigned, all students must complete at least 10 credits offered by the SSW to complete the BSW degree.

e. The only exception to the above will be students transferring from other BSW programs. Transfer credits for these students will be assigned following an individual file review of the student’s previous course outlines to determine equivalency of content and credit value within the SSW curriculum. Transfer credit is assigned as fairly and appropriately as possible, although some loss of equivalency is necessary. Students who transfer from other BSW degree programs are governed by the regulation that any student with a previous degree is required to complete a minimum of six credits (36 credit hours) under Dalhousie instruction, and that any student without a degree is required to complete a minimum of 7.5 credits (45 credit hours) under Dalhousie instruction.

D. Course Load and Sequencing

1. Length of Program

Most students accepted to the BSW program have a degree on entry with the required cumulative grade point average. Such students normally require 10 credits (60 credit hours) to complete the BSW degree. Students studying on campus may register on a full-time basis for two years of study, or on a part-time basis (to a maximum of ten years). Distance students may register for a two-year (24 month) full-time program of study, or a three-year part-time program of study (to a maximum of 10 years).

Students registered who have only five credits on entry (usually persons with related work experience) are required to complete three full-time years of study (90 credit hours) or the part-time equivalent. Students registered with six credits or more on entry but less than 15 credits, (16-90 credit hours), complete a two-to-three program as determined by the number of prior credits in relation to the School's transfer credit policy. Course load and sequencing may vary from student to student depending upon the number of transfer credits and full or part-time status.

2. On-Campus Delivery

- For full-time students the normal load is 15 credit hours (i.e., five 0.3 credit courses) in the Fall and Winter terms.

- For part-time study the course load may be as minimal as one .03 credit course per term.

- The only Social Work courses offered in the Spring semester consist of one Social Work elective and Field Practicum and Seminar.

- It is important to pay close attention to the pre and co-requisites for each course.

- These are indicated in the course descriptions.

3. Distance Delivery

Distance Students are strongly encouraged to maintain their course sequencing schedule. Any changes must be in accordance with pre- and co-requisites as outlined in the calendar and are dependent upon availability of course offerings, especially electives. Students studying by distance will be assessed distance delivery fees in addition to tuition.

E. Registration

Registration is completed online for all students regardless of delivery method. For more information, go to:


The academic timetable is available online each year. On-campus Social Work courses have section numbers of 01 or 02. Online Distance Social Work courses have section numbers of 07 or 08, and a notation of “DIE.”

IMPORTANT: Please note that it is not possible to transfer between onsite and the online delivery or to register for courses other than those which apply to the delivery method for which the student has been accepted.

F. Field Education

The Field Practicum and Seminar course consists of a 700 hour placement at a community agency plus participation in a concurrent integrated seminar. For a full explanation of the placement process, rules and responsibilities please download the Field Manual at http://socialwork.dal.ca/Prospects%20Students.html.

Field Placements are organized by the Field Education Coordinator at the School of Social Work.
G. Advising Sessions for New Students

New on-campus students are expected to attend Orientation which is scheduled prior to the commencement of courses. Students may consult individually with the Student Services Coordinator to review the curriculum, advising forms and ask questions pertaining to the BSW program. Distance students are provided with an online orientation and information site and should contact the Distance Coordinator regarding their program schedule and questions.

III. School of Social Work Regulations: BSW Degree Program

All Bachelor of Social Work students are required to observe the University and Academic Regulations of Dalhousie University and the Faculty of Health Professions set forth in the annual Undergraduate Calendar. The website location is http://www.registrar.dal.ca - Undergraduate Calendar - Academic Regulations, University Regulations.

1. Grade Point Average Requirements

Faculty of Health Professions’ academic regulations apply to the BSW degree requirements. Students require a cumulative GPA of 2.0 to graduate. In addition, the School’s grade requirements specified in Items 2 and 3 below apply to components of the Social Work curriculum.

2. Grade Requirements for Social Work Courses

The minimum requirements for satisfactory completion of a Social Work course is C-.

• In the case of a core course, a student who earns a grade of less than C-, but is otherwise still eligible to continue in the program, must repeat the course until a grade of C- is attained.
• In the case of an elective, a student who earns a grade of less than C-, but is otherwise still eligible to continue in the program, must repeat the same elective or if not offered during the student’s course of study, a different elective until a grade of at least C- is attained. Social Work courses are all courses taken under BSW study other than those designated as general admission credits.

3. Required Withdrawal: Academic Dismissal

A student who fails to meet sessional GPA standards as defined in the Academic Regulations - Faculty of Health Professions must withdraw from the School for at least 12 months. (Please refer to Academic Regulations - Good Standing, Probation and Academic Dismissal, Dalhousie Undergraduate Calendar).

• A student who fails a repeated academic course must normally withdraw from the BSW Program.
• A student who fails SULWK 4013, Field Practice and Seminar is required to withdraw from the BSW Program.

4. Required Withdrawal on Grounds of Unsuitability

See University Regulations: Suspension or Dismissal from a Program on the grounds of Professional Unsuitability - Faculty of Health Professions.

5. Consideration of Readmission

Students are normally required to complete their undergraduate studies within ten years of their first registration and comply with the program requirements at the time of first registration. If a student is readmitted and cannot complete the program within 10 years they may be required to comply with the program requirements.

5.a Request for Readmission After Dismissal

Students who have been required to withdraw from the School of Social Work on the basis of academic dismissal may apply for readmission by the annual February 15 admissions deadline date that follows a minimum of 12 month’s absence from the School. Due to the competitive nature of the enrollment process, readmission of students is not guaranteed.

5.b Request for Readmission After Voluntary Withdrawal

Students who have voluntarily withdrawn from the School of Social Work prior to the establishment of a fixed withdrawal date may apply for readmission by the annual February 15 admissions deadline date. The application and all supporting documentation must be accompanied by a letter explaining the reasons for the interruption in the student’s studies and the decision to request readmission to the BSW degree program.

6. Appeals

A student wishing to appeal a decision based on School regulations, should consult with the Chair of the Committee on Undergraduate Studies for advice on appeal procedures.

7. Duration of Undergraduate Study

Students are normally required to complete the BSW degree within 10 years of their first registration (see Academic Regulations—Duration of Undergraduate Studies).

8. Workload Regular Academic Year

Five full-credit (i.e., 30 credit hours) per academic year shall be regarded as containing a normal workload. Permission for the Undergraduate Program Coordinator is required if this workload is to be exceeded, or if the planned workload in any one term (Fall or Winter) would amount to more than five half-credits (i.e., 15 credit hours per term).

• On-campus, part-time students may register for a minimum of one (0.5 credit (three credit hours) per term. Part-time status applies to students registered for no more than a total of 2.5 credits (15 credit hours) in the Fall and/or Winter terms. All new students are required to register in the first Fall term following their acceptance in order to maintain their place in the program.

9. Workload Summer Session (includes May-June and July-August)

Dalhousie regulations permit students to take one full credit (a total of six credit hours) in each of the May-June and July-August parts of Summer term. Social Work students may, following consultation with the Field Coordinator, register for the Field Practicum and Seminar course during this session.

The School usually offers one (0.5 credit Social work course in the May/June period for BSW campus students, provided that minimum enrollment requirements are met. Students in distance delivery take their elective courses in the summer sessions. Consult the timetable for current course offerings.

Permission of the Undergraduate Program coordinator is required to exceed the maximum credit unit value for Social Work courses. Any additional Social Work courses would be considered on an individual basis at the discretion of the Program Coordinator.

10. Students in Other Degree Programs (applicable for on-campus students only)

Students enrolled in degree programs at Dalhousie may, in conformance with their program regulations, choose their degree electives from Social Work Field of Practice electives. Permission from the instructor is required; course prerequisites and class size limitations apply. Students are able to enroll in Social Work electives only to the maximum credit value allowable for open electives by their degree requirements. Any additional Social Work coursework would be considered on the same basis as “No Degree.”

11. Special Students “Non-Degree” (applicable for on-campus students only)

Social Work courses are not available to persons on a “no degree” basis, with the exception of agency field instructors and other qualified Social Work professionals who are able to satisfy normal admission requirements. Permission of the Undergraduate Coordinator is also required.

Students enrolled in other Social Work degree programs may be permitted to enroll in specific courses, by application for admission as a visiting student with letter(s) of permission from the home university. Course prerequisites and size limitations apply. Further information may be obtained from the Student Services Coordinator.

12. Deferral Policy

Newly accepted applicants who, for reasons beyond their control, are unable to take up their position on the date from which they were accepted, may request a deferral of one, two, or three terms. No student may receive more than one deferral.

Requests for a deferral of admission should be sent in writing to the Admissions Coordinator of the School of Social Work by August 15th for the year in which they were offered admission. When a deferral is requested, the applicant should clearly state the reason for the deferral and, when relevant or appropriate, provide additional documentation to support the request for
example, medical certification. All defenses are subject to the approval of the Undergraduate Program Coordinator.

13. Audit by Agency Field Instructors

The School of Social Work permits Agency Field Instructors to audit Social Work courses. Prior permission of the instructor concerned is required. In order for the audit to show on a University transcript, the agency field instructor must abide by the University’s regulations as outlined in Academic Regulations—Audit of Courses.

14. Tuition Fees

Detailed information concerning tuition and fees is available in the Fees section of this calendar as well as [link to University regulations].

IV. Course Descriptions

The following courses are restricted to Social Work students.

SLWK 2010.03: Introduction to Community Social Work.

Community Development within social work is the facilitation of meaningful change within communities to improve the quality of life for members of those communities. This course considers various conceptions of community, elements of change processes, and specific change strategies. PREREQUISITE: /Co-requisite: SLWK 2111, SLWK 2222

SLWK 2111.XY.06: Development of Canadian Social Work and Social Welfare.

This course is delivered online for campus students. It is an introductory survey course, offering a beginning examination of topics and issues that will be examined in greater depth in other courses during the BSW program. By reviewing the historical development of the politics, principles, policies, practices, values, and ethics of a Canadian social work and social welfare students appreciate the contextual, complex, and sometimes contradictory nature of the social work profession. NOTE: Credit can only be given for the course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

SLWK 2222.03: Advancing Social Justice.

This course introduces students to the current concepts of a social justice perspective including historical and current manifestations of inequality and injustice. It considers how the profession of social work has both advanced and impeded social justice. Particular attention is given to exploring the role of individuals in the promotion of equitable social relationships. This is a Prac/Field course that attends to cognitive, affective, and spiritual learning processes.

SLWK 2333.XY.06 (SLWK 2334/2335): Beginning Social Work Practice.

This course introduces students to the processes and practices of the social work profession including a range of beginning practice skills, social work values and ethics, the varied contexts of social work practice, and the roles and responsibilities of professional social workers. This multi-faceted course may include classroom instruction, simulations, seminars, workshops, contact with practicing social workers, visits to various social service agencies, and exposure to “first voice” experiences. This course requires 40 hours of self-directed learning activity time to be completed outside regularly scheduled class time. NOTE: Credit can only be given for the course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

PREREQUISITE: /Co-requisite: SLWK 2111, SLWK 2222

SLWK 2444.03: Life Processes; Conceptualizations and practices for Critical Social Work.

This course critically explores a range of life events and processes that may impact people's development, personalization and potentials. Attention is given to how ethnicity, race, social class, ability, gender, sexual orientation, age, religion, and other social variables interact with the individual development. The need for differential reactions from workers in response to clients varied life experiences will also be considered.

PREREQUISITE: /Co-requisite: SLWK 2111, SLWK 2222

SLWK 3012.03: Perspectives on Social Welfare Policy.

As an introduction to social policy analysis, this course surveys a variety of perspectives on social problems and social policy issues, with a focus on contemporary debates. The impact of policy on service users is a central theme of the course.

PREREQUISITE: /Co-requisite: SLWK 2111, SLWK 2222

SLWK 3030.06: Theoretical Foundations of Social Work Practice.

The central theme of this course is the integration of theory and practice, recognizing that theory guides practice and practice informs theory. The first term consists of the theoretical foundations of social work, understanding their relation to social work practice from social, political, economic and historical positions. The second term offers an in-depth examination of the theoretical foundations of a variety of critical perspectives. Case applications are explored from a variety of practice situations and problem definitions.

PREREQUISITE: /Co-requisite: SLWK 2111, SLWK 2222

SLWK 3083.03: Introduction to Research Methods and Statistics in Social Work.

This course provides an introduction to both quantitative and qualitative research methods, with particular attention to examples from social work research. Students become familiar with the whole of the research process from the identification of the problem to the presentation of results, including the application of statistics. Students will be exposed to the full range of alternative research designs, including both quantitative and qualitative research methods.

SLWK 3084.03: Understanding Research and Research Methods in Social Work.

This course provides students with the research methods required to evaluate social work practice at the case and program level. Students will learn how to evaluate organizations, casework, plan evaluations, and analyze quantitative and qualitative approaches to evaluations. Emphasis will be placed on evaluating benefits and outcomes of interventions for clients.

PREREQUISITE: SLWK 3030.03 is required.

SLWK 3220.03: Cross-Cultural Issues and Social Work Practice.

This course provides an opportunity to critically examine theoretical frameworks for viewing marginalized racial, ethnic and cultural groups in society, to examine personal values as they relate to the above groups, to develop skills in working effectively with these groups, and to understand related social policies.

PREREQUISITE: SLWK 2222, SLWK 2111, SLWK 2233, SLWK 3012

SLWK 4010.06: Advanced Social Work Practice.

Building on a number of the foundational courses, this course focuses on advanced practice theories and skills including a critical analysis of ethics. Student will become proficient in applying a critical social work practice framework at the beginning practitioners’ level.

PREREQUISITE: SLWK 2111, SLWK 2222, SLWK 2233, SLWK 2444

CO-REQUISITE: SLWK 3030

SLWK 4033.09 (SLWK 4034/4035): Field Practicum and Seminar.

This course includes a 500 hour agency based practice placement, integrated seminars and the opportunity to develop a broad range of practice knowledge and skills sufficient to meet the requirements for entry level professional position. The field practicum is done at the end of a student’s program. Students are responsible to stay in touch with the Field Coordinator during the placement process and comply with various requirements of placement sites (for example: immunizations, CRC, Child Abuse Registry). Some sites may require separate disability insurance in lieu of eligibility for Worker Compensation Coverage. Such costs are the responsibility of the student.

PREREQUISITE: SLWK 2111.03, SLWK 2222.03, SLWK 2233.03, SLWK 2444.03

CO-REQUISITE: SLWK 3030.03, SLWK 4010.03

V. Electives

In keeping with the overall program goals of the BSW program of ISW, all elective courses are designed to help students develop a critical analysis of the major themes and current issues related to the course topics. In addition, all electives explore the differential impact of social constructs such as race, gender, class, age, sexual orientation, and ability on the particular issue or practice field. There are no pre or co-requisites for Social Work Field of Practice Electives. The format is generally a combination of lecture, discussions and small group.
activities. Participation of non-social work students is dependent upon approval of their home School/Department, course enrollment and the permission of the instructor. Not all electives are offered every year; check the timetable for each year’s offerings.

Possible Elective Offerings

- SLWK 3100: Africentric Perspectives in Social Work
- SLWK 3120: International Social Work
- SLWK 3130: Women and Violence
- SLWK 3135: Social Work and Mental Health
- SLWK 3140: Crisis Counseling
- SLWK 3150: Poverty and Inequality
- SLWK 3160: Social Work with Aboriginal Populations
- SLWK 3170: Feminist Counselling (Cross Listed with GWST)
- SLWK 3200: Law and Social Work
- SLWK 3220: Women and Social Change
- SLWK 3240: Queer-Centred Social Work Practice
- SLWK 3250: Social Work in Corrections
- SLWK 3270: Social Work in Addictions
- SLWK 3290: Advanced Counselling in Social Work Practice
- SLWK 3320: Social Work and Aging
- SLWK 3330: Independent Study
- SLWK 3350: Social Work with Groups
- SLWK 3360: Social Work and Adolescents
- SLWK 3370: Child Welfare
- SLWK 3375: Child Welfare with Aboriginal Populations
- SLWK 4180: Disability Policy and Service
The Faculty of Management includes four schools - Rowe School of Business, School of Information Management, School of Public Administration, and School for Resource and Environmental Studies, as well as the Marine Affairs Program. The commerce degree has a mandatory co-operative education format.

Students wishing to enrol in programs offered by the Faculty should address themselves directly to the Schools concerned for further information or for help in planning courses of study; for the Undergraduate Programs, contact the Undergraduate Academic Advising Office at (902) 494-3710.

Dalhousie's Norman Newman Centre for Entrepreneurship, in collaboration with the Centre for Entrepreneurship Education and Development (CEED), offers a Certificate Program in entrepreneurship – the Entrepreneurial Skills Program (ESP), which is open to all Dalhousie University students. ESP facilitates the development, growth and success of student-run ventures. Through extracurricular, individualized, experiential learning, you will apply skills learned in the classroom to your own ventures. Students participating in the program develop personal portfolios that illustrate their entrepreneurial capabilities.

What is the Entrepreneurial Skills Program (ESP)?
The program is designed to be taken over the length of your time as a student at Dalhousie and therefore shouldn't extend time to degree completion. Successful students will earn a certificate in entrepreneurship in addition to their associated Dalhousie University academic degree in their field of study. The program culminates in the development of a personal portfolio that illustrates an student's entrepreneurial capabilities which is then presented to an accreditation panel. Upon successful completion of ESP, students are accredited and receive a certificate indicating venture readiness.

How do I know if ESP is for me?
Like most things, you probably won't know till you know. What we can say is that ESP typically appeals to those students who have an interest in being the masters of their own destiny. If you've got an idea for a business that you want to start, either during University or after graduation, then you owe it to yourself to get involved with ESP.

What's in it for me? Why would I want to be part of ESP?
Being part of ESP introduces you to a network of like-minded individuals. It's no surprise that successful people surround themselves with talented, energetic and visionary people. If you want to learn more about being in business for yourself, or if you want to get better at being an entrepreneur, then ESP is a good start.

By enrolling in ESP, you become part of a growing cohort of students that are interested in making a difference in their own lives and the lives of others. Aside from networking and peer-to-peer learning opportunities, you will also have access to training subsidies, business coaching, and skills development opportunities that you can leverage to make yourself a better business owner (or make yourself more marketable as an employee). If you participate in Dr. Leach’s classes you may be able to pursue your venturing interests while at the same time fulfilling some of the class assignment requirements.
If I sign up, how big a commitment are we talking about?  
Students enrolled in ESP are free to choose their degree of involvement. Many students become heavily involved, attending most, if not all, ESP-sponsored events. Others attend a limited number of events. ESP is flexible enough to accommodate you and your personal, academic and professional schedules.

Is Dalhousie the only University that offers ESP?  
No. Mount Saint Vincent University also has an active ESP program. On occasion, Dalhousie and MSVU partner to run ESP-sponsored events that are attended by students from both Universities.

ESP sounds like a lot of work – what if it gets too much for me?  
Involvement in ESP is entirely optional. You are free to leave the program at any point. Unlike most academic programs, there’s no downside risk (mark-related/ academic) associated with dropping ESP.

Commerce

Rowe School of Business

Location: 6100 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-7080
Fax: (902) 494-1107

The Rowe School of Business provides quality programs at both the undergraduate and master’s levels that prepare students to contribute to and take leading positions in business and society. Graduates of the programs are competitive in the global, diverse and continually changing workplace. Teaching, scholarship and service link theory and practice to benefit students, the University and the business community in Canada and abroad.

Specific objectives are to:
• Attract, retain and educate students of high calibre from Nova Scotia, elsewhere in Canada and internationally.
• Develop students’ knowledge of key concepts and issues in business operations, as well as in-depth knowledge within specialized business disciplines.
• Develop students’ analytical and decision-making skills through a mix of theoretical and applied approaches including lectures, discussion groups, individual research projects, team projects and coursework, as well as comprehensive field projects.
• Enhance students’ team and communication skills, which are needed to succeed in careers and management.
• Develop knowledge through research and association with the academic and professional communities.
• Maintain strong ties with both the private and public sectors.

The undergraduate commerce program includes studies in the humanities and social sciences as well as in the functional areas of business. It is offered on a co-operative education (work/study) basis.

Administrative Staff

Director, Commerce Program
Tarrant, F., BN (MUN), MPA (Queen’s), MBA (SMU), PhD (Capella University)

Commerce Program Manager
Horne, L.

Commerce Program Academic Advisors
Haigh, K.
Laffin, D.
Tarry, J.

Director, Centre for International Trade and Transportation
Lynard, D.

Coordinator, International Student Exchange Program
Richard, T.

Director, Management Career Services
Creaner, A.

Management Career Services Professional Staff
Bauld, L.
Dai-Gammon, A.
Jones, M.
Kitty, S.
Academic Staff

Professors Emeriti

Duffy, J. P., BSc, PhD (Dalhousie)
George, R. E., BSc (London), MA (Bristol), PhD (London)
Mezane, L. C., BA, BSc, PhD (FX), MA, PhD (Dalhousie) Chairholder - Herbert S. Lam Chair in Business Education
McNown, J. D., BA, MA, PhD (McGill)
Roscoe, P. J., BSc (Sheffield), MA (Lancaster), PhD (Bath)
Steeve, D., BA (Dalhousie), MA (Carleton), PhD (Exeter, United Kingdom)

Professors

Baird, J., B. A. (UCA), M.A. (Purdue), PhD (Dalhousie) Chairholder - Herbert S. Lam Chair in Business Education
Brooks, M. B., BCAF (McGill), MBA (Dalhousie), PhD (Silesia) Associate Chairholder - William A. Black Chair of Commerce
Chen, J., BSc, MSc (Beijing), PhD (Ivey)
Lynch, D., BSc (Carleton), MSc (Queen's), PhD (Arkansas)
Klapstein, R. E., BSc (Calg), BA (Alta), MBA, LLB (Dalhousie), LLM (Osgoode Hall), CMA
Kuo, M., BComm, MBA (Toronto), PhD (York)
Schellinck, D. A., BSc, MBA (Dalhousie), PhD (Illinois) Chairholder - F. C. Manning Chair in Economics and Business
Sheehan, L., BComm (Alberta), MEc, MBA, PhD (Dalhousie)
Zhao, Y., BComm (China), MSc (Kentucky), PhD (USC)

Associate Professors

Bluemel, M., BSc (Queen's), MSc (Carleton), PhD (McMaster)
Blundon, R. G., BComm (Dalhousie), MM (Northwestern), PhD (Wisconsin)
Carvalho, S., BBA (Fortaleza), MBA (Northeastern), PhD (CUNY)
Crowell, T., BComm, BCA (Saskatoon), MBA, PhD (Carrington)
DeSousa, J., BSc (Queen's), MBA (Dalhousie), PhD (York)
Enns, J., B.Comm (Brock), MSci (Queen's)
Kuo, M., BComm, MBA (Toronto), PhD (York)
Lambie, R., PhD (Dalhousie)
Lam, S., BComm, MBA (SMU), CMA (NS), MSc (Dalhousie)
Larouche, D., BComm, MBA (Dalhousie), PhD (Carleton)
Lui, W., BComm, MBA (Dalhousie), PhD (Hong Kong)
Mackenzie, J., BSc (London), MBA (Dalhousie), PhD (London)
Papadopoulos, K., BSc (London), MBA (Dalhousie), PhD (Dalhousie)
Rice, J., BComm (Dalhousie), MBA, PhD (Dalhousie)
Song, K., BComm (Dalhousie), MBA (SMU), PhD (Dalhousie)
Tarrant, S., Bachelor of Nursing (Memorial), MPA (Queen's), MBA (SMU), PhD (Dalhousie)
Tracy, K., BComm, MBA (Dalhousie), PhD (Dalhousie)

Lecturers

Baker, J., BComm, MBA (Dalhousie), PhD (Queen's)
Clary, N., BComm (Dalhousie)
Crowell, T., BComm, MBA (Dalhousie)
Lang, S., BComm, MBA (SMU), MBA (Concordia), MSc (Dalhousie), CFA
Power, J., BComm (Dalhousie)
Shaw, D., BA (Queen's), MBA (Edinburgh)
Wooden, K., BComm, MBA (Dalhousie)

I. Bachelor of Commerce Program

The Rowe School of Business offers a four-year Bachelor of Commerce (Co-operative Education) Program that is accredited by both the Association to Advance Collegiate Schools of Business (AACSB) and the Canadian Association for Co-operative Education (CAFCE). It is one of the few mandatory co-op business degree programs in Canada. Cooperative education is an academic strategy that integrates on-campus study with off-campus work experience. The schedule for the Bachelor of Commerce Co-op Program includes seven academic terms (AT) and three work terms (WT), as follows:

- Year 1: AT1, AT2, FREE
- Year 2: AT3, WT1
- Year 3: WT2, AT5, WT3
- Year 4: AT6, AT7

The co-op program in Commerce requires a broad and general range of studies, including required and elective courses provided by the Faculty of Arts and Science. The program also allows students to choose a major in a variety of special areas. The Commerce program does not offer Minors or Double Majors.

The three work-terms each receive credit, but constitute a full work load. (See the Regulations section of this calendar for "overload" limits and conditions.)

A. Degree Requirements

- Four-year program - seven academic terms and three work-terms
- Total credits required - 20 full credits
- Required GPA for graduation 2.00
- Required work terms - 1 ½ credits
- Required core area courses - 10 ½ credits

Note: A suitable replacements for MATH 1115.03 is MATH 1100.03

- Commerce electives - four credits,
  - Work terms - 1 ½ credits

- COMM 1101.03
- COMM 1102.03

- COMM 1115.03
- COMM 1120.03

- COMM 1201.03
- COMM 1202.03

- COMM 1210.03
- COMM 1220.03

- COMM 2101.03
- COMM 2110.03

- COMM 2201.03
- COMM 2210.03

- COMM 2301.03
- COMM 2310.03

- COMM 2410.03
- COMM 2420.03

- COMM 2510.03
- COMM 2520.03

- COMM 2610.03
- COMM 2620.03

- COMM 3101.03
- COMM 3110.03

- COMM 3201.03
- COMM 3210.03

- COMM 3301.03
- COMM 3310.03

- COMM 3401.03
- COMM 3410.03

- COMM 3501.03
- COMM 3510.03

- COMM 4101.03
- COMM 4110.03

- COMM 4201.03
- COMM 4210.03

- COMM 4301.03
- COMM 4310.03

- COMM 4401.03
- COMM 4410.03

- COMM 4501.03
- COMM 4510.03

- COMM 4601.03
- COMM 4610.03

- COMM 4701.03
- COMM 4710.03

- COMM 4801.03
- COMM 4810.03

- COMM 5101.03
- COMM 5110.03

- COMM 5201.03
- COMM 5210.03

- COMM 5301.03
- COMM 5310.03

- COMM 5401.03
- COMM 5410.3
• Non-commerce electives - three full credits (of which 1½ credits must be at or above the 2000 level) selected from all courses offered in the University other than commerce, management and business.
• Free electives - one full credit (can be commerce, at or above the 2000 level, or non-commerce at any level)

NOTE: Students readmitted to the Commerce program will be subject to the Academic Regulations as stated in the Calendar for the year of readmission. For further information, contact the Rowe School of Business, Undergraduate Advising Office, 6100 University Avenue, Suite 2086, (902) 494-3710. Email: bcomadvising@dal.ca

B. Program Guide

Students normally follow a fixed program of study, as outlined below:

Academic Term One
• COMM 1010.03: Business in a Global Context
• COMM 1101.03: Financial Accounting
• COMM 1502.03: Core Business Applications
• ECON 1101.03: Principles of Microeconomics
• One non-commerce elective

Academic Term Two
• COMM 1710.03: Business Communications I
• COMM 2102.03: Managerial Accounting
• ECON 1102.03: Principles of Macroeconomics
• MATH 1115.03: Mathematics for Commerce
• One non-commerce elective

Work Term I - COMM 2801.03

Academic Term Three
• COMM 1720.03: Business Communications II
• COMM 2202.03: Finance I
• COMM 2401.03: Intro to Marketing
• COMM 2501.03: Statistics I
• One non-commerce elective

Academic Term Four
• COMM 2203.03: Finance II
• COMM 2204.03: Organizational Behaviour
• COMM 2502.03: Statistics II
• COMM 2603.03: Legal Aspects of Business
• PHIL 2011.03 Business Ethics

Work Term II - COMM 3801.03

Academic Term Five
• COMM 3100.03: Operations Management
• COMM 3311.03: Management Information Systems
• Three commerce electives
• One non-commerce elective

Academic Term Six and Seven
• COMM 4311.03 and 4312.03: Competitive Strategy & Strategic Mgmt
• Five commerce electives
• Two non-commerce electives
• Two free electives

During their fifth, sixth and seventh academic terms, students can either pursue a customized program of study, by choosing electives from a wide range of the functional areas of business, or they can follow a more specialized program, taking their elective courses towards a major.

Major in Accounting

Students must complete the following six courses:
• COMM 3100.03
• COMM 3111.03
• COMM 3114.03
• COMM 3115.03
• COMM 4101.03
• COMM 4125.03

Plus two of:
• COMM 3201.03
• COMM 3401.03
• COMM 4102.03
• COMM 4126.03
• COMM 4511.03

The professional accounting bodies allow certain exemptions in respect of courses taken in the Rowe School of Business. These differ from province to province. Particulars can be obtained from the provincial offices of the Association of Certified General Accountants, the Institute of Chartered Accountants, the Society of Management Accountants, and the Chartered Institute of Secretaries.

Students must obtain COMM 1101 and 2102 with an average of at least B-.

Major in Entrepreneurship

Students must complete the following six courses:
• COMM 3507.03
• COMM 3508.03
• COMM 3509.03
• COMM 3200.03 or COMM 3400.03
• COMM 3401.03 or COMM 3402.03
• COMM 4501.03

Note: Students must also complete either an entrepreneurial work term, as defined by the Norman Newman Centre for Entrepreneurship and Management Career Services; or an approved work term in an entrepreneurial setting.

Major in Finance

Students must complete the following three courses:
• COMM 3203.03
• COMM 3206.03
• COMM 4240.03

Plus three of:
• COMM 3207.03
• COMM 3208.03
• COMM 3209.03
• COMM 3100.03 or COMM 3105.03 or COMM 4540.03 or ECON 2200.03 or ECON 2201.03

Note: Courses outside of commerce, such as economics, are counted as non-commerce electives or free electives.

Major in International Business

Students must complete the following:
• Language Requirement; six credit hours (at a level appropriate to knowledge, as determined by department concerned)

Plus the following:
• COMM 3400.03
• COMM 4201.03
• COMM 4701.03

Plus one of the following:
• ECON 2213.03
• ECON 2219.03
• ECON 2334.03

Students must also complete one academic term or one work term in a country that is not their primary residence.

Note: Courses outside of commerce, such as economics, are counted as non-commerce electives or free electives.

Major in Managing People and Organizations

Students must complete the following:
• SOSA 1002.03 and SOSA 1003.03 or SOSA 1100.06 or SOSA 1200.06 or PSYO 1011.03/1021.03 and PSYO 1012.03/1022.03
• COMM 3300.03
• COMM 3310.03
• COMM 4315.03
Major in Marketing Logistics

Students must complete the following five courses:

- COMM 4401.03
- COMM 4402.03
- COMM 4404.03
- COMM 4406.03
- COMM 4407.03

Plus one of:

- COMM 4401.03
- COMM 4402.03
- COMM 4404.03
- COMM 4406.03
- COMM 4407.03

**Note:** Courses offered only in alternate years.

Major in Marketing Management

Students must complete the following five courses:

- COMM 1401.03
- COMM 1402.03
- COMM 3401.03
- COMM 3402.03
- COMM 3403.03

Plus one of:

- COMM 1401.03
- COMM 1402.03
- COMM 3401.03
- COMM 3402.03
- COMM 3403.03

**Note:** Courses offered only in alternate years.

Co-op Work Terms

(For more information visit: [http://www.dal.ca/comm](http://www.dal.ca/comm))

A work term is a period of time when a student gains practical experience in a business-related work environment. Each passed work term is an academic half credit and must meet the requirements listed below. Three passed work terms are required to graduate.

**During a work term a student is considered an employee of their work term employer with reference to the conditions of their employment and is a student with respect to academic evaluation only. The university does not accept liability for the student’s work environment.**

Students are remunerated according to employer policy and the labour laws of the jurisdiction in which they work.

Career and Recruitment Specialists conduct mid-term reviews with both the employees and students to ensure the work term objectives are being met.

**Work Term Requirements**

Students receive academic credit upon completion of the following for each work term:

1. Students must register for each work term (Comm 2801, Comm 3801 and Comm 3802) via Dal on-line.
2. Students must participate in co-op orientation.
3. Each work term must be completed within the designated semester with one employer. A work term must total at least 12 weeks with a cumulative total of 42 weeks over three work terms. A work term must be a minimum of 35 hours per week.
4. All jobs, including self-developed jobs, must be approved by Management Career Services.
5. Students are responsible for finding suitable employment and students sign a Co-op Education Program Agreement prior to the first work term accepting this responsibility. (Support for the job search is provided by Management Career Services and some job opportunities are posted on the myCareer job posting system.)
6. Employers commit to completing and submitting an evaluation detailing the student’s performance level which must be assessed as satisfactory to receive academic credit.
7. Students must submit a satisfactory work term report for each work term.

**Work Term Eligibility**

Only students who meet the prerequisites (see Section II. Courses Offered of this calendar) are eligible to go out on a work term. Students whose grades drop below a 1.70 GPA overall will be required to withdraw from the program. Also refer to the university regulation regarding probation.

Co-operative Education Fee

Students are charged a Co-operative Education Fee. In an effort to balance the cost, the fees are charged on each academic term until completion of the degree. While no fee is charged for the actual work term, any student taking an academic course during the work term will be charged an additional pro-rated fee. Co-op fees are prorated for part-time students.

These fees are non-refundable after the deadline dates listed in the University Calendar. Students who transfer into the program from another department or another institution are responsible for back payments.

Students taking a full academic term on a Letter of Permission are also responsible for the payment of co-op fees. Before the Letter of Permission can be granted, students must sign a form available from the Undergraduate Advising Office, which states they will pay the full co-op fees for terms done at another university.

Payment of all installments is required to obtain a Bachelor of Commerce Degree. Consult the Fees section of the Dalhousie University Calendar for details.

The Co-op fee covers:

- Administration of the co-op work term including, but not limited to:
  - Job search assistance (cover letters and resume building, interview preparation and debrief, coaching for self-developed job search strategies)
  - Orientation workshops and other training
  - Networking opportunities with employers (including special events, competitions, information sessions, corporate tours, mentoring etc)
  - Work term monitoring and mediation of unanticipated situations
  - Post work term debrief
  - Development of job opportunities
  - Access to on-line job posting site and job posting administration
  - Interview space and co-ordination
  - Facilitation of job offers
  - Tracking of eligibility and job search activity

**D. Management Information Systems**

All faculty members and staff have their own personal computers and students have access to a computer lab with 63 personal computers. All personal computers in the School are based on the latest family of processors (currently Pentium IV, 1.6 GHz). They are fully networked and run Windows software and the latest Windows-based applications. All machines have full access to the Internet and students have a choice of web browsers. Students have a choice of printing on black-and-white or colour laser printers. There is also a full-sized color scanner available free of charge.

**E. Exchange Programs**

Dalhousie offers Commerce students the opportunity to study abroad in a variety of countries all over the world, including Denmark, France, Sweden, Norway, Korea and Germany (a complete list of partnerships can be found at cimit.management.dal.ca). While participating in this extremely popular program, students develop international contacts, immerse themselves in a different culture, and gain valuable international experience. For more information, please contact Tim Richard, Student Exchange Coordinator, by email at tim.richard@dal.ca or by telephone at (902) 494-2224.

**II. Course Descriptions**

**Courses Offered**

Consult the current timetable to determine in which term(s) each course is offered. It may not be possible to offer all the electives listed below every year.

Students should bear this in mind when planning their program.
COMM 1010.03: Business in a Global Context.

The course provides an introduction to the international context of Canadian political, economic and business activity. It presents a sampling of the most salient issues facing managers in business, labour and public service organizations. Emphasis is placed on developing an understanding of Canada’s competitive position today, and of the historical background and current influences on this position. The focus of the course will be on lectures, the text, guest speakers, and more specifically what is said in class by your instructor as well as in tutorials by your tutorial leader and your colleagues. Leading edge ideas and concepts - many of which are not written exclusively to any one particular text or article - will be introduced by your instructor during the lectures, and may be reiterated through hand-out notes in time to time.

NOTE: Students in BCom Program can not receive credit for Mgmt 1003.03 or Mgmt 1001.03.

FORMAT: Lecture 3 hours
EXCLUSION: COMM 1003.03

COMM 1101.03: Introductory Accounting I. (Financial).

An introduction to the principles and practices used by accountants in processing and communicating data, both within and outside the organization. Emphasis is on financial accounting and reporting, with the following objectives:

• To introduce the theoretical framework upon which financial statements are based, and examine the major underlying concepts and principles;
• To demonstrate basic financial accounting methodologies, and develop the analytical and procedural skills related thereto;
• To understand the information content of conventional financial statements, and the inherent limitations of accounting data.

FORMAT: Lecture 3 hours. Plus tutorials, as required. Written and computer-based assignments.
EXCLUSION: MGMT 2101.03

COMM 1502.03: Core Business Applications: Introduction to Computers.

The course focuses on how business applications, namely Word Processors, Spreadsheets, Enterprise Resource Planning (ERP) systems e.g. SAP and Dino. Visualization (tools) contribute to the management, analysis and reporting of data with respect to business processes and how they can aid in solving the business problems. This course begins with an overview of Management Information Systems, before proceeding through several modules that involve data-to-document transformations, along with data integrations between various applications. We use spreadsheets to perform routine business calculations, and various online data sources using business digital dashboards. The analyses are then collated and summarized using features of word processors to produce a final report for each case. In the course, the choice of an appropriate methodology will increase the complexity of the analyses and reports. As the course progresses, business simulations will be used to provide experiential and immersive learning opportunities. The course is taught with both in-class lectures and self-paced computer laboratory exercises.

NOTE: MGMT 1601.03, ASSC 1000 or CSCI 1200 will not be counted in the Commerce program.
EXCLUSION: COMM 1801.03, MGMT 1601.03, INFO 1601.03, ASSC 1000, CSCI 1200.03

COMM 1700.03: Preparing for Business in Canada.

This course is a mix of lectures, seminars, workshops and guest presentations. Activities covered in course will be targeted towards a Canadian workplace environment. Students are expected to participate in class discussions, presentations and group projects. The activities in class will be based on practical applications of business communication strategies and language skills. Students will demonstrate their progress in-class activities and take home assignments.

FORMAT: Seminar

COMM 1710.03: Business Communications I.

Students will learn how to be effective speakers and presenters. The primary goal of this course is to introduce the first-year students to the types of oral communication used in today’s workplace. The course will start with introducing a philosophy for clear, effective, and ethical communication, how to construct analyses, develop arguments and use to self-reflection and individual or group projects. The course will cover a variety of topics such as networking, creating effective job application cover letters and resumes, interviewing, formal and informal presentations, job-search skills, learning, teams, dynamics and conducting meetings, while doing research on potential employers. Students will have the opportunity to practice their skills and evaluate the skills of others.

FORMAT: Lecture 3 hours

COMM 1720.03: Communications II.

This course follows COMM 1710.03. While the primary goal of this course is to teach students how to properly prepare written business correspondence, second-year students will also learn about academic writing (the concept of intellectual property, library resources, essay writing, and critical thinking). The course will again start with introducing a philosophy for clear, effective and ethical communication, how to construct analyses, develop arguments, make strategic choices on an audience, structure, choice of channel, type of message, gain an understanding of the audience, the content and context culturally sensitive and ethically correct messages in the appropriate channel and form. Additionally, they will learn about communication theory and the importance of communication in the workplace so that they will learn about critical listening, critical thinking, and how to be strategic writers. By the end of the course, students will be able to understand business contexts and learn how to make choices of medium, channel, form and also how to write business messages, e-mail messages, letters, reports, and proposals, analytical reports, participate and learn about group work.

FORMAT: Lecture 3 hours
PREREQUISITE: COMM 1710.03
EXCLUSION: INFO 1003.03, ENGL 2100.03, CSCI 2100.03
Students taking COMM 1720 cannot receive credit for these courses

COMM 2102.03: Introductory Accounting II. (Managerial).

An introduction to the use of accounting information by managers, within the organization. Emphasis is on management accounting and analysis, with the following objectives:

• To develop an understanding of the kinds of accounting information managers need;
• To examine managerial accounting methodologies and develop the analytical and procedural skills related thereto;
• To prepare accounting reports which are useful for management planning, control and decision-making;
• To develop an awareness of the limitations of managerial accounting information.

FORMAT: Lecture 3 hours. Plus tutorials as required. Written and computer-based assignments.
PREREQUISITE: COMM 1103.03 or MGMT 2001.03
EXCLUSION: MGMT 2002.03

COMM 2202.03: Finance I.

An introduction to the problems faced by business managers in the acquisition and effective use of the firm’s assets, and its application to the problems faced by financial managers. This course covers an in-depth study of capital budgeting and long-term investment decisions in national and international contexts, financial analysis and its application to the problems faced by financial managers. This course covers an in-depth study of capital budgeting and long-term investment decisions in national and international contexts, capital structure, dividend policy, and the fundamentals of options and futures.

FORMAT: Lecture 3 hours
PREREQUISITE: COMM 1103.03, ECON 1101.03 and ECON 1102.03, MATH 1151.03 or MATH 1000.03
EXCLUSION: MGMT 2201.03

COMM 2203.02: Finance II.

This course provides students with an overview of the theory of corporate finance and its application to the problems faced by financial managers. This course covers an in-depth study of capital budgeting and long-term investment decisions in national and international contexts, capital structure, dividend policy, and the fundamentals of options and futures.

FORMAT: Lecture 3 hours
PREREQUISITE: COMM 2202.03
EXCLUSION: MGMT 2201.03

COMM 2303.03: Introduction to Organizational Behaviour.

This course will provide an overview of organizational behavior theory, as well as an introduction to the practical applications of that theory, within the context of the external and organizational forces that impact management. Through mini lectures, cases and discussion, students will be introduced to the theoretical basis of managing people in organizations. Key topics will include individual factors, such as personality and performance management; and contextual issues, such as organizational culture and change as well as the interactions of individual factors. Additionally, they will learn about communication theory and the importance of communication in the workplace so that they will learn about critical listening, critical thinking, and how to be strategic writers. By the end of the course, students will understand business contexts and learn how to make choices of medium, channel, form and also how to write business messages, e-mail messages, letters, reports, and proposals, analytical reports, participate and learn about group work.

FORMAT: Lecture 3 hours
PREREQUISITE: COMM 2302.03
EXCLUSION: MGMT 2301.03

COMM 2303.04: Business Communication I.

Students will learn how to be effective speakers and presenters. The primary goal of this course is to introduce the first-year students to the types of oral communication used in today’s workplace. The course will start with introducing a philosophy for clear, effective, and ethical communication, how to construct analyses, develop arguments and use to self-reflection and individual or group projects. The course will cover a variety of topics such as networking, creating effective job application cover letters and resumes, interviewing, formal and informal presentations, job-search skills, learning, teams, dynamics and conducting meetings, while doing research on potential employers. Students will have the opportunity to practice their skills and evaluate the skills of others.

FORMAT: Lecture 3 hours
The objective of the course is to familiarize you with marketing's mode of inquiry-the way marketers look at the world. As a marketer you should be able to: 1) ask the right questions about markets, 2) analyze data into relevant information, 3) discover market opportunities, 4) set goals, 5) create a marketing plan that includes clear target markets, as well as product, price, distribution and communication strategies, and 6) implement and control a marketing program. Students will be expected to apply their knowledge to real world scenarios. This provides students with hands-on group decision making and data analysis skills, and they are specifically responsible for creating product, pricing, promotion and placement strategies for a brand or group of brands. The course will also train you in a number of skills that are necessary for higher level courses and career advancement (i.e., case analysis and analytical report writing).

FORMAT: Lecture 3 hours

COMM 2100.03: Corporate Investments.

This course is intended to provide an understanding of the corporate financial reporting model and related conceptual issues. The course develops essential financial statement comprehension skills, revenue and expense recognition and a wide range of asset accounting issues, including receivables and inventories, long-term investments, property, plant and equipment, leases, intangibles, share capital, and retained earnings. The course emphasizes Canadian generally accepted accounting principles (GAAP) and the role of financial statements in decision making.

FORMAT: Lecture 3 hours

COMM 2003.03: Legal Aspects of Business.

This course provides an overview of some of the major legal problems that might be faced by the business community. It examines the meaning and sources of law, the legal remedies, the justice of the law, the role of courts in an orderly society, the law of contracts and application of principles from equity, the law of the agency, the law relating to the sale of goods, bailment, contracts of employment, negotiable instruments, real property, mortgages, partnerships, international transactions, corporations and secured transactions. Students must make extensive use of the law library in written reports on a series of cases.

FORMAT: Lecture 3 hours

COMM 2001.03: Work-Term One, Bachelor of Commerce Co-op.

Unless written permission is obtained, in advance, from the Commerce Program Manager, this must be done in the Winter term of the second year.

PREREQUISITE: At least 6.2 full credits, which must include COMM 1502.03, COMM 1710.03 and COMM 3720.05 plus at least 4 other full credits which must be in the Com. Area (ECON, COMM 1101.03 and ECON 1002.03 and MATH 1115.03 or MATH 1000.03).

COMM 3103.03: Financial Reporting and Statement Analysis.

This course is intended for students who are not majoring in accounting. The approach to this course is analytical rather than procedural, with an emphasis on a user perspective. Topics include analysis of financing, investing and operating activities, profitability, and credit risk. Accounting topics include pensions, intercompany transactions, leases, currency translation, and cash flow.

FORMAT: Lecture 3 hours

COMM 3105.03: Intermediate Financial Accounting I.

This course covers the theory and practice of public auditing according to generally accepted auditing standards (GAAS). The course emphasizes Canadian Auditing Standards (CASS) and considers the effects impacting on the setting of standards and the current level of standards. This includes pronouncements of the accounting profession, reporting standards, professional ethics, audit planning, risk assessment, and examination of internal control in both manual and computerized environments, standards for the quality of evidence, statistical sampling and the sufficiency of evidence, documentation and working papers. The course considers typical audit programs for examination of financial statement elements and fraud awareness.

FORMAT: Lecture 3 hours

COMM 3104.03: External Auditing.

The major objective of this course is to develop a deeper understanding of the key topics in cost management accounting and their management applications. The selected topics to be covered include costing systems, cost-volume-profit analysis, cost and profit variance analysis, control and performance evaluation in decentralized organizations. This course is intended primarily for students who plan to major in the accounting area.

FORMAT: Lecture/course discussions 3 hours

COMM 3203.03: Financial Institutions.

This course is intended to introduce students to the structure and operations of financial institutions and the role they play in the growth and operation of capital markets. The course concentrates on reviewing the operation and functioning of various types of financial institutions and their roles in the economy. An emphasis will be put on measuring different types of risks and methods for managing these risks for financial institutions, particularly the banks. The topics include (but are not limited to) interest rate risk management, credit risk management, liquidity risk management, market risk management, and so forth. The role of derivative securities in various hedging strategies will also be reviewed.

FORMAT: Lecture 3 hours

COMM 3206.03: Investment and Money Management.

This course is designed to provide the student with an overview of current investment theories and the application to the real world. In particular, a considerable effort will be made to compare and contrast the activities of money managers with the ones that are suggested in various theoretical models. The intention is to provide our students with the needed skills to successfully face the challenging world of portfolio and money management.

FORMAT: Lecture/seminar 3 hours

COMM 3207.03: Canadian Securities.

This course is intended for students who are not majoring in accounting. The approach to this course is analytical rather than procedural, with an emphasis on a user perspective. Topics include analysis of financing, investing and operating activities, profitability, and credit risk. Accounting topics include pensions, intercompany transactions, leases, currency translation, and cash flow.

FORMAT: Lecture 3 hours

COMM 3208.03: Cost Management.

EXCLUSION: MGMT 1501.03 and MGMT 2502.03; MATH 1060.03; STAT 1060.; ECON 2260.03; ENGM 2032.03

COMM 3209.03: Financial Institutions.

This course is designed to provide students with an overview of current investment theories and the application to the real-world. In particular, a considerable effort will be made to compare and contrast the activities of money managers with the ones that are suggested in various theoretical models. The intention is to provide our students with the needed skills to successfully face the challenging world of portfolio and money management.

FORMAT: Lecture 3 hours

COMM 3210.03: Corporate Investments.

This course is intended to provide students with an overview of current investment theories and their application to the real world. In particular, a considerable effort will be made to compare and contrast the activities of money managers with the ones that are suggested in various theoretical models. The intention is to provide our students with the needed skills to successfully face the challenging world of portfolio and money management.

FORMAT: Lecture 3 hours

COMM 3211.03: Intermediate Financial Accounting II.

This course is a follow-up to COMM 2100.03. It concerns mostly the relationship of two or more measurements. Topics covered in detail are analysis of variance, regression, correlation, and multiple regression, and time series. Statistical software is featured prominently throughout the course for statistical computations.

FORMAT: Lecture 3 hours

COMM 3201.03: Investment and Money Management.

This course is designed to introduce students to the structure and operations of financial institutions and the role they play in the growth and operation of capital markets. The course concentrates on reviewing the operation and functioning of various types of financial institutions and their roles in the economy. An emphasis will be put on measuring different types of risks and methods for managing these risks for financial institutions, particularly the banks. The topics include (but are not limited to) interest rate risk management, credit risk management, liquidity risk management, market risk management, and so forth. The role of derivative securities in various hedging strategies will also be reviewed.

FORMAT: Lecture 3 hours

COMM 3204.03: External Auditing.

The major objective of this course is to develop a deeper understanding of the key topics in cost management accounting and their management applications. The selected topics to be covered include costing systems, cost-volume-profit analysis, cost and profit variance analysis, control and performance evaluation in decentralized organizations. This course is intended primarily for students who plan to major in the accounting area.

FORMAT: Lecture/course discussions 3 hours

COMM 3205.03: Financial Institutions.

This course is designed to introduce students to the structure and operations of financial institutions and the role they play in the growth and operation of capital markets. The course concentrates on reviewing the operation and functioning of various types of financial institutions and their roles in the economy. An emphasis will be put on measuring different types of risks and methods for managing these risks for financial institutions, particularly the banks. The topics include (but are not limited to) interest rate risk management, credit risk management, liquidity risk management, market risk management, and so forth. The role of derivative securities in various hedging strategies will also be reviewed.

FORMAT: Lecture 3 hours

COMM 3206.03: Investment and Money Management.

This course is designed to provide the student with an overview of current investment theories and the application to the real-world. In particular, a considerable effort will be made to compare and contrast the activities of money managers with the ones that are suggested in various theoretical models. The intention is to provide our students with the needed skills to successfully face the challenging world of portfolio and money management.

FORMAT: Lecture/seminar 3 hours

COMM 3207.03: Canadian Securities.

The topics covered in the course include an overview of capital markets and the financial services industry; financial statement analysis; an overview of the Canadian economy; financial institutions; securities; investment funds; derivatives; security analysis; financing, listing and regulation; financial planning.
Course focuses on the study of leadership as a process of influencing people, COMM 3310.03: Reflections on Leadership.

EXCLUSION: MGMT 3309.03
PREREQUISITE: COMM 2303.03
FORMA T: Lecture/discussion 3 hours and three or four 1.5 hour tutorials early in the semester.

COMM 3307.03: Managing the Family Enterprise. The course has two purposes. First, it provides an organized framework for students to understand the dynamics and special issues of family firms. Second, it is designed to help students develop skills in analysing and communicating with family members. Therefore, it is especially intended for students who come from families which are in business or for students considering joining a family business. Others who wish to explore a key segment of Canadian business are also welcome.

The course relies on field projects, guest speakers, case studies, videos, research papers and extensive discussion to explore the territory of managing family businesses.

FORMA T: Lecture/discussion 3 hours
PREREQUISITE: COMM 1010.03 and COMM 2401.03
COMM 3403.03: Consumer Behaviour. This course will introduce students to knowledge, skills, and attitudes (KSAs) that are critical to managing human resources effectively. Topic areas include: understanding what the successful manager needs to know, understanding the self, communications, interpersonal negotiations, goal setting, managing innovation and change, handling conflict and anger, performance evaluation, counselling and feedback, and management attitudes needed for success. Significant amounts of classroom time will be devoted to behaviour modelling exercises, role plays, case studies, and group discussions. Course participation forms a significant part of final course grade.

FORMA T: Lecture/discussion 3 hours
PREREQUISITE: COMM 2303.03
COMM 3310.03: Reflections on Leadership. Course focuses on the study of leadership as a process of influencing people, rather than dealing with leadership at the organizational level. The course will comprise a) a study of leadership theory, b) an opportunity to observe leadership through case studies, films, and various exercises, and c) an opportunity to practice leadership by leading a group in a short course-related project. The parameters of ethical leadership will be emphasized.

PREREQUISITE: COMM 1010.03 and COMM 2303.03 or (MGMT 2303.03 and MGMT 2304.03)
COMM 3401.03: Consumer Behaviour. In view of the very competitive situation in modern business, the firm that is successful designs and sells products that meet the desires of specific consumer segments. Thus, analysis and prediction of consumer behaviour are increasing in importance and sophistication. An extensive body of research evidence from marketing and the behavioural sciences is explored and evaluated to assess the marketing implications of elements of consumer behaviour. Emphasis in course will be focused on how to incorporate an understanding of consumer behaviour into strategic marketing plans.

FORMA T: Lecture/discussion 3 hours
PREREQUISITE: COMM 3307.03

COMM 3402.03: Marketing Communications. This course is designed to provide students with an understanding of how the major types of marketing communications messages are created and delivered. This means students should come away knowing the strengths and weaknesses of the major marketing communication functions (e.g., advertising, public relations, direct response, sales promotion, social marketing, publicity, etc.) and the major media used by them. By the end of the course, the student will have the ability to: (1) establish a knowledge base of researching and evaluating a company’s marketing and promotional situations; (2) gain hands-on experiences in the creation of an integrated marketing communication campaign that impact customer relationships and brands; and (3) develop effective communication strategies and programs for real company situations. For those students who are not marketing majors, this course will also provide a basic understanding of persuasive skills which can be used no matter what career they choose in the future.

FORMA T: Lecture/case method/ applied project work 3 hours
PREREQUISITE: COMM 2401.03
COMM 3404.03: Marketing Research. Students learn the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing intelligence from it. The course is designed to teach the scientific method in solving marketing problems and creating marketing
COMM 3408.03: Transportation Modes and Policy.
This course will introduce the student to the business of managing a transport enterprise. It will focus on understanding the regulatory (policy) environment and competition associated with transportation. The course will also explore operational considerations across a number of transport modes. The intent will be to explore the impacts of policy and model structure on marketing the transportation company and attracting it for growth. The course is suitable for students wishing to work in the transport industry, in the supply chain, activities of a transport customer or, tangentially, in the strategic management of any service business.
PREREQUISITE: COMM 2401.03
COMM 3409.03: Personal Selling and Sales Management.
This course is designed to provide an understanding of the tools and problems facing today's sales professionals and sales managers and to familiarize one with current personal selling and sales force management practices. Specifically, this course provides an exposure to personal selling concepts, techniques and procedures used in buyer-seller relations such as prospecting, sales call planning, negotiation skills, overcoming obstacles, persuasion and closing skills. It also covers sales management topics including the organization of the sales force, personnel management, selection, sales training, motivation, compensation, evaluations and supervision, budgets, quotas, territories and sales control. Sales role-plays, mock sales presentations, case studies and classroom discussion are used to extend the basic text material and encourage other points of view.
PREREQUISITE: COMM 2401.03
COMM 3410.03: Services Marketing.
This course is designed to provide an understanding of the marketing of intangible goods and services (versus tangible goods) share a number of attributes that present unique challenges for marketing. The course seeks to prepare students to face these challenges. It is ideal for students who wish to work in a service industry (e.g., banking, insurance, travel, hospitality, consulting) or in a service capacity in a manufacturing sector (e.g., sales, customer relations). Emphasis will be placed on understanding the distinctive characteristics of services, the implications of these distinctions for marketing, the role of service quality as a determinant of customer satisfaction, and the measurement of these phenomena. Examples will be drawn from the North American and European service industries.
PREREQUISITE: COMM 2401.03
COMM 3411.03: Direct Marketing.
The focus of this course is on the role of advertising, promotion and new distribution channels to enable direct communications and distribution. These changes have been a result of the increasing power of the consumer, among channel members and the manufacturers of products and services, where manufacturers have sought to maintain direct contact with their customer. The course will focus on the development of a direct marketing strategy by introducing students to the tools of direct marketing, the strategic management of the household and the development of relationship marketing, and the introduction of new media such as the Internet. The skills required in direct marketing are in strong demand within the Canadian economy. This course will focus on the development of a direct marketing strategy that requires an understanding of the tools of direct marketing, the creative process, and the development of a strategic marketing plan. This course will focus on the role, their use, and their role in supporting business operations and decision making, how they need to be managed, and the impact that they can have on organizations' and professionals' competitive positions. Students will be exposed to SAP ERP systems and Business Analytics tools via hands-on lab work and exercises.
PREREQUISITE: COMM 1001.03, COMM 1002.03
COMM 3801.03: Work-Term Two, Bachelor of Commerce Co-op.
Unless written permission is obtained, in advance, from the Commerce Program Manager, this must be done in the Fall term of the third year.
PREREQUISITE: At least 9 full credits earned, including COMM 2001.03 and at least 2 full credits in the Core Area (Commerce, ECON 1101.03 and ECON 1102.03, MATH 1113.03 or MATH 1000.03, PHIL 2001.03)
COMM 3802.03: Work-Term Three, Bachelor of Commerce Co-op.
Unless written permission is obtained, in advance, from the Commerce Program Manager, this must be done in the Summer term of the third year.
PREREQUISITE: At least 11 full credits earned, including COMM 3001.03 and at least 10 other credits in the Core Area (Commerce, ECON 1101.03 and ECON 1102.03, MATH 1113.03 or MATH 1000.03, PHIL 2001.03)
COMM 4000.03: Directed Reading and Research.
This course offers the student the opportunity to explore in greater detail a particular area of interest. The content of the course is negotiated with the individual instructor involved. The student and instructor must develop a proposal and submit it to the Curriculum Committee for approval. Guidelines are available from the Undergraduate Advising Office, Suite 2086, Rowe Building.
COMM 4101.03: Advanced Topics in Accounting I.
This course provides a theoretical framework for the study of accounting policy. Cases analysis is an integral part of the course. Topics covered include accounting policy choice in a dynamic framework, an introduction to the impact of accounting policy choice in the market, the role of the professional accountant in the market, and the role of the professional accountant in the market. As well, the course may consider various practical and theoretical topics, including the role of the professional accountant in the market, and the role of the professional accountant in the market. As well, the course may consider various practical and theoretical topics, including the role of the professional accountant in the market, and the role of the professional accountant in the market.
PREREQUISITE: COMM 3005.03 and COMM 3011.03
CROSS-LISTING: BUSI 6101.03
EXCLUSION: COMM 3113.03

COMM 4102.03: Advanced Topics in Accounting II. 
This course provides an in-depth study of the interrelated topics of intercorporate investments, business combinations, consolidated financial statements, foreign currency transactions, and foreign operations. The course also covers segmented reporting and bankruptcy, and not-for-profit accounting and fund accounting. PREREQUISITE: COMM 2202.03 and COMM 3111.03

COMM 4112.03: Accounting Research.
This course focuses on the fundamentals of financial reporting, establishing the context in which financial reporting is developed and how financial reporting can best describe the economic value and economic performance of enterprises. Topics include accounting under ideal conditions, complications caused by information asymmetry, adverse selection and moral hazard challenges in the decision-based models of accounting information users, standard-setting frameworks and mechanisms, governance and social responsibility implications of reporting issues. The course will follow a seminar format, including presentations and analysis of current events. Students will be required to formulate a research proposal as a major course deliverable. PREREQUISITE: COMM 2202.03, COMM 3105.03, COMM 3111.03

COMM 4125.03: Taxation.
This course is an introduction to the taxation system in Canada, with a focus on personal income tax. The course will be a mixture of lecture style classes and problem solving classes. The class will be interactive and students will be expected and encouraged to participate. By the end of the course students should be able to:

- Calculate income tax payable for individuals
- Identify and analyze tax issues both orally and in writing

PREREQUISITE: COMM 1101.03 or MGMT 2101.03; and ECON 1101.03 and ECON 1102.03 and COMM 3105.03

COMM 4126.03: Taxation II.
This course is a follow up to COMM 4125 and focuses on corporate income tax. The course will be a mixture of lecture style classes and problem solving classes. The class will be interactive and students will be expected and encouraged to participate. By the end of the course students should be able to:

- Calculate income tax payable for corporations
- Identify and analyze tax issues both orally and in writing

PREREQUISITE: COMM 4125.03 or COMM 4120.03 EXCLUSION: COMM 4121.03

COMM 4201.03: International Financial Management.
This course is an introduction to derivatives and the main applications of derivatives for both investment purposes and corporate finance use. As an introductory or first course in derivatives, the goal is to cover the central concepts and issues that will permit the student to start using the products and understanding the profit advantages, as well as the issues with derivative transactions. The course covers both quantitative pricing issues, as well as the many practical qualitative issues involved with the use of derivatives. Students should be comfortable with basic statistics and algebra. Knowledge of calculus is not required for this course. Students should also be comfortable with Excel spreadsheets and basic Excel mathematical functions.

PREREQUISITE: COMM 2202.03 and COMM 2205.03

COMM 4240.03: Advanced Corporate Finance. 
This course will help students learn to apply fundamental ideas of corporate finance to real-life problems of business and personal financial decision making. Topics that will be discussed include valuation, mergers and acquisitions, financial distress, capital structure, dividend policy, and corporate governance. The course builds on concepts and techniques that students have learned in finance, accounting, statistics, and economics. Case studies will be used to bridge the gap between finance theory and its applications to practical problems in corporate finance.

PREREQUISITE: COMM 2202.03 and COMM 2205.03

COMM 4250.03: Theory of Finance. 
This course is designed to complement other finance courses that have been previously offered to finance majors. It covers core theory of capital markets and corporate finance. Topics include functions and operations of capital markets, analysis of consumption-investment decisions, diversification and portfolio selection, valuation theory and equilibrium pricing of risky assets, and investment and financing decisions of firms. Theoretical foundations for further study and practical applications will be emphasized. PREREQUISITE: COMM 2202.03 and COMM 2205.03

COMM 4310.03: Managing the Venturing Process. 
Managing the Venturing Process is a capstone course that explores the strategic elements required to venture successfully. By linking theory and practice, the course is designed to familiarize students with entrepreneurial strategies for the emerging venture, for the growing venture, and for sustaining growth in the established venture. Venturing will be explored in the context of both for-profit and non-for-profit objectives and will examine nurturing single entrepreneurs as well as organizational entrepreneurs. As this is a capstone course students will be expected to use knowledge acquired in other business courses.

PREREQUISITE: COMM 3305.03 or MGMT 3907.03 CROSS-LISTING: MGMT 4901.03

COMM 4306.03: Organizational Change, Theory and Design. 
This course will provide students with an understanding of contemporary organizational theories and their application to organizational structure, design and change. The main thrust of the course will be a practical analysis of why organizations change, why organizational structures and processes evolve, and how change affects individuals. The objective of the course is for students to be able to understand and to analyse change and decision making skills necessary for the effective introduction of change into complex organizations.

NOTE: This course replaces COMM 4305.03 PREREQUISITE: COMM 2205.03 and COMM 3309.03 EXCLUSION: COMM 4305.03, COMM 4302.03, MGMT 3320.03

COMM 4315.03: International and Intercultural Management. 
This senior level course is designed to provide students with the knowledge and skills necessary for effective management and leadership styles, training for international assignments, cross-cultural staffing, inter-cultural negotiations, ethics and social responsibility, expatriate and repatriation management, and designing global structures.

RECOMMENDED: COMM 3301.03 and COMM 3309.03

FORMA T: Lecture 3 hours, cases, exercises PREREQUISITE: COMM 2205.03
COMM 4340.03: Corporate Governance.

The course focuses on corporate governance in the relationship between the top management team (TMT), the board of directors (BoD), and other stakeholders, especially shareholders. The collapse of once successful, large corporations across the globe illustrates the precariousness of their board members and the degree of their lack of concern for stakeholders’ interests. The reputation of audit and consulting companies associated with these ill-fated corporations suffered a great setback, leaving stakeholders wondering whom to trust to safeguard their interests.

Students will take an in-depth look at corporate governance tried, as indicated above, that controls the modern corporation. Accordingly, this course will deal with the current corporate world and provide students with a broad view of board, board responsibility and accountability, CEO tenure and compensation, shareholder and other stakeholder representation, corporate board’s vis-a-vis social responsibility and ethics, and competitive corporate governance across North America, Europe, and selected Asian countries.

FORMAT: Lecture
PREREQUISITE: COMM 4511.03

COMM 4351.03: Competitive Strategy

Competitive Strategy focuses on how a firm competes at various levels that is, functional, business, and corporate. The course is designed to analyze the sources of competitive advantage among firms and to develop knowledge and skills necessary for effectively analyzing and formulating strategy. Accordingly, the course examines the role of the general manager in the organization, environmental and industry factors; organizational resources and capabilities, the creation of value through functional, business, and corporate-level strategies, and, finally, how an organization leverages its resources and capabilities to extend in product and geographic scope internationally. Building upon this foundation, students will practice formulating well thought-out strategy recommendations that are specific and actionable. Throughout the term, students will be exposed to a wide variety of organizations through readings, case studies, and experiential exercises.

PREREQUISITE: At least 12.5 full credits earned, including COMM 3002.03 and at least 9 other full credits in the area core (Commerce, ECON 1101.03 and ECON 1102.03, MATH 1000.03, PHIL 2081.03 and any area courses)
EXCLUSION: COMM 4601.05

COMM 4352.03: Strategic Management.

Strategic Management builds on COMM 4351.03: Competitive Strategy. After a short review of the external environment faced by the organizations, the focus of this course turns to the examination of the internal workings of organizations. Mindful of the fact that the general manager’s job includes the task of implementing competitive strategy and managing strategic changes. This Strategic Management course will deal with the organization as a holistic entity.

In COMM 4352.05, various pedagogical methods are used to develop and engage students, including presentation and skills required to build and grow a business environment. It also emphasizes analytical tools and conceptual frameworks that are used to develop and grow the organization. This course will be taught in the teaching lab with a combination of individual and group simulations interspersed with short lectures. An active learning approach in this course will include hands-on learning using SAP ERP, as well as ERP plans, a game-based SAP ERP simulation. There will be a combination of learning opportunities from previous experiences, conceptually and skillfully learning the procedures and technical skills with SAP and playfully learn how Enterprise Systems facilitate Business Intelligence which can be used to lead a company in a competitive environment.

PREREQUISITE: COMM 4351.03 and COMM 3111.03

COMM 4510.03: Corporate Communication.

This course offers an introduction to principles, concepts, and software applications as well as an actual experience of project management in a practical project team setting. The course also introduces theories and practices of project management as related to project objectives, lifecycle stages, and control variables such as time, cost, and scope. Students will gain insight into the realities of managing a project and will learn to adapt to varying financial, political and cultural challenges encountered within project teams and organizations.

PREREQUISITE: COMM 3101.03 and COMM 3111.03
CROSS-LISTING: MGMT 4335.03

COMM 4523.03: Information Technology Project Management.

The course will provide an introduction to the use of systems used in production and service organizations. The course will focus on the role of the information system in the overall strategy of the organization and the development of strategic plans for information systems. The course will also cover the specific applications of information systems in the areas of production and service organizations.

PREREQUISITE: COMM 4501.03 and COMM 4506.03
CROSS-LISTING: BUSI 6504.03
COMM 4701.03: International Business Strategy.
The objective of this course is to help the students understand why firms expand overseas and how foreign operations differ from domestic ones. It provides the students with the necessary knowledge for a career or further study in international business. The course introduces the basic concepts of international business from a manager’s perspective. It examines the causes and problems that arise when business operations extend across national boundaries and become international in scope or character. The emphasis is two-fold. First, consideration is given to the characteristics and contemporary dynamics of the world economy. Second, analysis is made of the development of the multinational firm and of the adaptation of the basic managerial functions due to internationalization. The course orientation is pragmatic and managerial. Through case studies, class discussions, assigned readings, and lectures, the students are expected to develop the skills for analyzing situations and formulating solutions in an international business context.
PREREQUISITE: COMM 3802.03 or MGMT 4001.03
EXCLUSION: COMM 3701.03
A. Degree Requirements

- Four-year program
- Total credits required: 20
- Required core area courses: 10.5 credits:
  - ECON 1100.03
  - MGMT 1000.03
  - MGMT 1001.03
  - MGMT 1002.03
  - MGMT 1003.03
  - MGMT 1004.03
  - MGMT 1702.03
  - MGMT 2101.03
  - MGMT 2303.03
  - MGMT 2304.03
  - MGMT 2801.03
  - MGMT 2802.03
  - MGMT 2803.03
  - MGMT 3203.03
  - MGMT 3204.03
  - MGMT 3205.03
  - MGMT 3206.03
  - MGMT 4901.03

- Required Management electives:
  - Three half-credit courses in management electives are required
  - One full-credit Writing Course (see Section C.)

- Open Electives:
  - No credit required
  - Seven full credits (14 half credits), chosen from all courses offered in the University

- Management electives:
  - A minimum of three full credit (six half credit) courses at the 1000 level is permitted.
  - A minimum of three full credit (six half credit) courses in Commerce is permitted.

- Writing Requirement:
  - One full credit Writing Course (see Section C.)

- GPA requirements:
  - Required GPA for graduation: 2.00
  - Total credits required: 20
  - Four-year program

- Majors:
  - One of the first five credits chosen should be selected from a list of courses in which written work is considered frequently and in detail. These writing courses are approved by the Writing Across the Curriculum committee and are listed on page 125 of the academic calendar. Courses which satisfy the Writing Requirement are identified by the following symbol and notation in their formal description: W: Writing Requirement

D. Combined Degree

The School of Health and Human Performance and the Faculty of Management offer a five-year program in which a student graduates with both degrees, Bachelor of Science (Recreation)/Bachelor of Management. Please consult the School of Health and Human Performance in the calendar (page 395) for more information.

E. Majors

During their fifth, sixth, seventh and eighth academic terms, students can either pursue a general program of study, by choosing electives from a wide range of the functional areas, or they can follow a more specialized program, taking their elective courses towards a major. Seven interdisciplinary thematic majors are available to students who focus their studies in specific aspects of management.

Entrepreneurship and Innovation Major

Required Courses:
- SOSC 1010.03: Introduction to Anthropology
- SOSC 1100.06: Introduction to Sociology
- PSYO 1011.03/1012.03: Introduction to Psychology and Neuroscience 1 and II
- PSYO 1021.03/1022.03: Introduction to Psychology and Neuroscience 1 and II

Leadership and Organization Major

Required Courses:
- COMM 3308.03: Managing the Family Enterprise
- MGMT 3100.03: Management Skills Development
- MGMT 3120.03: Organizational Theory
- MGMT 3503.03: Human Resource Management

Management and Globalization Major

Required Courses:
- One of:
  - SOSC 1000.06: Introduction to Anthropology
  - SOSC 1200.06: Introduction to Sociology
  - PSYO 1011.03/1012.03: Introduction to Psychology and Neuroscience 1 and II
  - PSYO 1021.03/1022.03: Introduction to Psychology and Neuroscience 1 and II

Economics of Global Warming or ECON 2217.03: Women and the Economy

Public Sector Management Major

Required Courses:
- MGMT 2501.03: Statistics for Managers I
- MGMT 2502.03: Statistics for Managers II
- MGMT 3601.03: Government Policy towards Business
- MGMT 3602.03: Government Policy
- ECON 2216.03: Economics of Global Warming or ECON 2217.03: Women and the Economy

Knowledge Management Major

Required Courses:
- MGMT 3503.03: Human Resource Management
- MGMT 4501.03: Advanced Knowledge Management
- MGMT 4540.03/INF 6504.03: Database Management Systems or INFX 2640.03: Use and Design of Databases

Sustainable Resources and the Environment Major

Required Courses:
- MGMT 3308.03: Managing the Venturing Process
- MGMT 3309.03: Advanced Resource/Environmental Management 1
- MGMT 4702.03: Advanced Resource/Environmental Management 2

C. Writing Course

Students will normally follow the courses as listed in the table below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall/Spring</th>
<th>Winter/Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Writing Requirement</td>
<td>Writing Requirement</td>
</tr>
<tr>
<td></td>
<td>ECON 1100.03</td>
<td>ECON 1101.03</td>
</tr>
<tr>
<td></td>
<td>MGMT 1000.03</td>
<td>MGMT 1001.03</td>
</tr>
<tr>
<td></td>
<td>Open Elective</td>
<td>Open Elective</td>
</tr>
<tr>
<td>2</td>
<td>MGMT 1000.03</td>
<td>MGMT 1001.03</td>
</tr>
<tr>
<td></td>
<td>MGMT 1002.03</td>
<td>MGMT 1003.03</td>
</tr>
<tr>
<td></td>
<td>Open Elective</td>
<td>Open Elective</td>
</tr>
<tr>
<td>3</td>
<td>MGMT 1000.03</td>
<td>MGMT 1001.03</td>
</tr>
<tr>
<td></td>
<td>MGMT 1002.03</td>
<td>MGMT 1003.03</td>
</tr>
<tr>
<td></td>
<td>Open Elective</td>
<td>Open Elective</td>
</tr>
<tr>
<td>4</td>
<td>MGMT 1000.03</td>
<td>MGMT 1001.03</td>
</tr>
<tr>
<td></td>
<td>MGMT 1002.03</td>
<td>MGMT 1003.03</td>
</tr>
<tr>
<td></td>
<td>Open Elective</td>
<td>Open Elective</td>
</tr>
</tbody>
</table>
### Environment, Sustainability and Society

**Location:** College of Sustainability  
**Telephone:** (902) 494-4581  
**Fax:** (902) 494-2123  
**Email:** sustainability@dal.ca  
**Website:** http://www.ess.dal.ca

### Degree Programs

The College of Sustainability offers a Major in the BMgmt program. For complete details about the College, its programs and courses please see the College of Sustainability section on page 44 of the Calendar.

#### Required Courses:
- SUST 1000.06  
- SUST 2000.06 or SUST 2001.06

These full credits from the Approved ESS Electives list: at least two of these credits must be above 2000 level, and at least two of these credits must be from outside MGMT.

See the College of Sustainability on page 44 for course descriptions and the list of Approved ESS Electives.

### F. Majors - Electives

#### Major in Entrepreneurship and Innovation

Students need four half credits from list. A minimum of one half credit from each of columns A and B.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 4333.03 Project Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4335.03 Project Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 3601.03 Information In a Networked World</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 3502.03 International Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
</tbody>
</table>

#### Major in Knowledge Management

Students need four half credits from list.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 2102.03 Managerial Accounting</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 2102.03 Managerial Accounting</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 3601.03 Information In a Networked World</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 3502.03 International Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
</tbody>
</table>

### Major in Leadership and Organizations

Students need four half credits from list.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 3301.03 Business Ethics</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 3301.03 Business Ethics</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 3502.03 International Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 3502.03 International Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
</tbody>
</table>

### Major in Management and Globalization

Students need four half credits from list. A minimum of one half credit from each of columns A and B.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 4620.03 Electronic Text Design</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4620.03 Electronic Text Design</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4611.03 Information Policy</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4611.03 Information Policy</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
</tbody>
</table>

### Major in Public Sector Management

Students need four half credits from list. A minimum of one half credit from each of columns A and B.

Students are strongly recommended to take a full credit of French or Spanish.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 4300.03 Information Resources in Government</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4300.03 Information Resources in Government</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4370.03 Records Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4370.03 Records Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
</tbody>
</table>

### Departmental Focus

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 4440.03 International Business</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4440.03 International Business</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4440.03 International Business</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4440.03 International Business</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
</tbody>
</table>

### Approved ESS Electives

- Three full credits from the Approved ESS Electives list: at least two of these credits must be above 2000 level, and at least two of these credits must be from outside MGTM.

See the College of Sustainability on page 44 for course descriptions and the list of Approved ESS Electives.

### Major in Entrepreneurship and Innovation

Students need four half credits from list. A minimum of one half credit from each of columns A and B.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 4333.03 Project Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4335.03 Project Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 3601.03 Information In a Networked World</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 3502.03 International Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
</tbody>
</table>

### Major in Leadership and Organizations

Students need four half credits from list.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 3301.03 Business Ethics</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 3301.03 Business Ethics</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 3502.03 International Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 3502.03 International Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
</tbody>
</table>

### Major in Management and Globalization

Students need four half credits from list. A minimum of one half credit from each of columns A and B.

Students are strongly recommended to take a full credit of French or Spanish.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 4300.03 Information Resources in Government</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4300.03 Information Resources in Government</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4370.03 Records Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4370.03 Records Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
</tbody>
</table>

### Major in Public Sector Management

Students need four half credits from list. A minimum of one half credit from each of columns A and B.

Students are strongly recommended to take a full credit of French or Spanish.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 4300.03 Information Resources in Government</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4300.03 Information Resources in Government</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4370.03 Records Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
<tr>
<td>MGMT 4370.03 Records Management</td>
<td>CANA 2000.03 Introduction to International Trade</td>
</tr>
</tbody>
</table>
### G. Minors

#### For Bachelor of Management students

Bachelor of Management students can undertake a minor from various departments within the Faculty of Arts and Social Science, the Faculty of Science or the Faculty of Computer Science. They should consult advisors in those faculties for the most current information on the requirements for particular minors.

### H. Optional Internship

The Bachelor of Management (BManag) internship is a minimum of 32 weeks (approximately eight months) of consecutive, full-time work experience related to your studies. Internships can be at large multi-national corporations or small offices, at a not-for-profit organization or a government department. We will work with you to find the right internship for you.

Bachelors of Management students currently in the second year of their program are eligible to apply for the Internship Program.  Please meet with your Program Administrator/Academic Advisor, Margie Muise (margie.muise@dal.ca) or Katie Haigh (katie.haigh@dal.ca) to discuss your course plan.

Acceptance to participate in the Internship Program will be assessed on the following criteria:

1. Completion of Application Form
2. Statement of Intent
3. Resume
4. GPA of 2.70 or higher in the two terms preceding application submission
5. Positive recommendations from references
6. Personal interview with Management Career Services (to be arranged once complete application is reviewed)
7. Full participation in the Internship Prep Seminar, MGMT 4895 (no credit value) which is held each fall

#### Internship Fee

Students accepted into the Internship Program are charged an Internship Fee. This fee is non-refundable after the deadline date provided by Management Career Services.

#### Full participation in the Internship Prep Seminar, MGMT 4895 (no credit value) which is held each fall

#### Minor Programs

For a current list of minors please see "Minor Programs" on page 126 of the Undergraduate Calendar

For students registered in the BA, BSc, Blinf and BCSc programs:

The minor in management is available to students registered in the BA, BSc, Blinf and BCSc programs. The requirements are as for the appropriate degree program with completion of the following courses:

**Required courses:**

- MGMT 1001.00: Introduction to Management Issues
- MGMT 1002.00: Introduction to Management Issues II
- ECON 1101.03: Micro Economics
- ECON 1102.03: Macro Economics
- MGMT 1103.00: Statistics for Managers
- MGMT 2102.03: Resource and Environmental Management
- MGMT 2801.03: Government Structure

Plus an additional two full credits of MGMT courses at or above the 2000 level.

#### Column A Science Focus

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVS 3200.03</td>
<td>Environmental Law</td>
</tr>
<tr>
<td>PLAN 3001.03</td>
<td>Resource and Environmental Management</td>
</tr>
<tr>
<td>MGMT 4013.03</td>
<td>Ecosystem-Based Approaches (currently Marine Protected Areas)</td>
</tr>
<tr>
<td>BIOL 2060.03</td>
<td>Introductory Ecology</td>
</tr>
<tr>
<td>PLAN 3005.03</td>
<td>Cities and the Environment in History</td>
</tr>
<tr>
<td>PHIL 2480.03</td>
<td>Environmental Ethics</td>
</tr>
<tr>
<td>MGMT 4504.03</td>
<td>Management of Resources and the Environment</td>
</tr>
<tr>
<td>MGMT 4205.03</td>
<td>Law and Policy for Resource and Environmental Management</td>
</tr>
<tr>
<td>ECON 3332.03</td>
<td>Resource Economics</td>
</tr>
<tr>
<td>BIOL 4065.03</td>
<td>Sustainability/Global Change</td>
</tr>
<tr>
<td>MGMT 4015.03</td>
<td>Maritime Transportation</td>
</tr>
<tr>
<td>MGMT 4021.03</td>
<td>Fisheries Management</td>
</tr>
<tr>
<td>MGMT 4031.03</td>
<td>Economics for Resource and Environmental Management</td>
</tr>
<tr>
<td>MGMT 4507.03</td>
<td>Environmental Informatics</td>
</tr>
</tbody>
</table>

#### Column B Applied Focus

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 2218.03</td>
<td>The Canadian Economy in the New Millennium</td>
</tr>
<tr>
<td>SPAN 2201.03</td>
<td>Latin America</td>
</tr>
</tbody>
</table>
through the payment of a mandatory Management Career Services Fee. This fee is
provided for part-time students. The fee covers the following:
• Individual Resume and Cover Letter Reviews
• Career Recruitment Workshops including: Winning Resumes, Effective
Interviewing, Job Search Strategies and Networking
• On Campus Job Recruitment
• Employer Information Sessions
• Special Events (i.e. Interview Competition, Recruiting Events such as Super
Wednesday and Tap the Talent and Corporate Tours, both locally and in other
cities)
• Strong Interest Inventory (career assessment tool)
• Bachelor of Management Internship Program Application Processing

Students have access to a Career & Recruitment Specialist within Management
Career Services. There are six Career & Recruitment Specialists (CRS), each
responsible for a specific area, and currently there are two CRS staff dedicated to
work with Bachelor of Management students and are responsible for the
administration of the optional internship program. Bachelor of Management
students may also access another CRS if they require specific information on an
area.

Career & Recruitment Specialists work with students individually or in group
sessions to help with the following:
• Identifying student strengths, interests and priorities
• Helping students establish which career path and work environment is right for
them.
• Planning a job search strategy
• Writing effective resumes and cover letters
• Building and interacting with a network of contacts
• Preparing for interviews
• Providing support, advice and monitoring of the work term
• Providing job search assistance for graduating students

Career Recruitment Specialists are also trained to mentor and guide students during the
often frustrating time when students are trying to make career decisions and are
searching for the right job. In typical situations, they assist by:
• Listening to the student’s concerns
• Providing feedback to help students gain insight
• Advising students on how to develop strategies
• Supporting and encouraging students to meet their individual goals.

III. Course Descriptions

MGMT 1000.03: Managing Organizational Issues I.
The course places management in its broadest context and helps students from
different disciplinary backgrounds understand the complex social, economic, ecological, political
and technological forces shaping 21st century leadership in the public, private and
non profit sectors. Key themes explored in the course include systems thinking, value-based approaches to management, and personal and professional
development. We use those who successfully complete MGMT 1000/1003 as holistic, critical and strategic thinkers, acting with urgency to engage
stakeholders, individually and in teams, to achieve personal, organizational and societal goals through interdisciplinary approaches. MGMT 1000/1003 graduates
will possess the ability to think globally, strategically, boldly, holistically and
inter-disciplinarily, while considering local ecological, economic and cultural
differences.

MGMT 1001.03: Managing Organizational Issues II.
A continuation of the concepts and principles from the first term of the course, with emphasis on making inferences based on observed data. Topics
covers include descriptive statistics, probability, random variables, estimation, hypothesis testing and statistical software.

NOTE: Students enrolled in the Bachelor of Management must register for this
course.
EXCLUSION: COMM 2101.03 and COMM 2102.03, MATH 1060.03 or STAT
1060.03, ECON 2260.03, ECON 2222.03
PREREQUISITE: MGMT 1000.03

MGMT 1601.03: Electronic Information Management.
This course will teach students how to use computer applications to record and
process data to create and communicate information and knowledge. Students will also
learn the fundamentals of database design. They will also learn to design and create web pages with html.

NOTE: ASCS 1000 or CSCL 1200 will not be counted in the Bachelor of
Management program.

MGMT 1702.03: Ecosystem Goods and Services.
The course explores the ecosystem goods and services on which our societies and
economies depend, and the environmental basis of those goods and services. The course will cover the nature and function of matter, energy, ecosystems, primary
producers, natural resources, biodiversity, ecological footprints, and feedback loops, and their importance for managers.
EXCLUSION: MGMT 1700.06, ENV 1100/CYI/6, ENV 1000/06

MGMT 2101.03: Financial Accounting.
This course covers the basic financial accounting methodologies and accounting
principles used in the measurement and reporting of an organization’s operating,
financing and investing activities to external parties. Students develop an
understanding of the information content of financial statements and techniques
for analyzing the financial statements. The organizational context includes
business, government and not-for-profit settings. The coverage includes
examination of the accounting process, basic issues in financial reporting, and the
financial statement disclosure requirements.
PREREQUISITE: MGMT 1000.03, MGMT 1001.03
EXCLUSION: COMM 2101.03/COMM 1101.03

MGMT 2102.03: Managerial Accounting.
This course examines how accounting can provide information to assist
management in their planning, decision-making and performance evaluation
activities – whether for businesses, governments, not-for-profit organizations
or special projects. Both qualitative and quantitative information supports the
decision-making. Topics will include the understanding and determination of cost
behaviours, an examination of the problems of tracing and allocating costs to the
purpos(es) their incurrence was intended to serve, and the criteria for determining which costs are relevant in answering types of decisions or areas of responsibility.
PREREQUISITE: MGMT 2101.03
EXCLUSION: COMM 2102.03

MGMT 2104.01: Public Sector Financial and
Managerial Accounting.
This is required for all students who have completed COMM 2101.03 or COMM
1101.03. It covers the components that are covered in the MGMT courses and
absent from typical private sector accounting courses.
PREREQUISITE: COMM 2101.03 or COMM 1101.03

MGMT 2303.03: People, Work, and Organizations:
Micro Organizational Behaviour.
Organizational behaviour and the study of work organizations and management
draw on a number of disciplines within social sciences to help us understand
and make sense of individual behaviour and human action in groups and
organizations. Through a combination of individual and group work and a blend
of classroom-based activities supplemented by additional resources and materials
available via BLS, this course will explore concepts and theories relating to micro
aspects of organizational behaviour. Topics include: individual motivation,
personality, perception, attitudes and values, and the relationships between
individual choices and actions. Links will also be made to practice and processes
in organizations (e.g. rewards, appraisal, feedback, performance appraisals and
organizational commitment).
PREREQUISITE: MGMT 1000.03 and MGMT 1001.03
EXCLUSION: COMM 2303.03

Students who have taken COMM 3101.03 Introduction to Managing People are
currently required to take MGMT 3309.03 (Management Skills Development)
for full exclusion to MGMT 2303.03 and MGMT 2304.03.
MGMT 2304.03: People, Work and Organizations: Macro Aspects of Organizational Behaviour.
Profit Sectors.
Management principles. Discussion also covers new organizations and intellectual
activities might include: lectures, videos, seminars, internet exercises, and
processes, leadership, power and politics; organizational cultures, processes of organizational
change, and legal and ethical issues and frameworks. To achieve a balance between theoretical and practical learning, the teaching methods will combine mini-lectures with in-class/on-line exercises, cases, presentations and group facilitated discussions.
PREREQUISITE: MGMT 2303.03 or equivalent. MGMT 2304.03 is a
alternative to the ways in which organizations create, identify, capture, process, and distribute knowledge. Topics include knowledge generation and classification, knowledge markets, knowledge transfer and skills, and knowledge management principles. Discussion also covers new organizations and intellectual capital, the integration of human resources, training and development, information systems and security, and business units to implement knowledge management strategies, and new roles and responsibilities for knowledge workers.
PREREQUISITE: MGMT 1001.03, MGMT 1002.03. Second year students
MGMT 2702.03: Resource and Environmental Management.
This course provides an overview of principles and techniques and explores challenging issues of environmental and resource management. Sustainable development provides a framework for examining the issues involved in the extraction, manufacture, use and disposal of materials, energy, and products, and the management tools available for addressing these issues.
PREREQUISITE: MGMT 1702.03
EXCLUSION: MGMT 1700.06, ENV 1100.06 or ENV 1000.06
MGMT 2801.03: Government Structure.
The course introduces students to the organizing principles and structures of the three levels of Canadian government, federal, provincial and municipal. The focus is particularly directed at the permanent public service and seeks to examine the collective “whole of government” influence on Canadian affairs. For those interested in business this is an important course as it provides an understanding of the core structures business must understand when dealing with government. As citizens this course provides a framework for understanding how you might protect your rights.
PREREQUISITE: Second year student; MGMT 1000 and MGMT 1001
EXCLUSION: PUB 2201.03
MGMT 2803.03: Management in the Public Sector.
This course provides an introduction to the principles and methods used in the management of financial, human, and information resources in public sector organizations, with an emphasis on leadership in the Canadian context. It is designed to meet the educational needs of undergraduate students who are interested in a career in public service, the arts, or non-profit organizations, and who wish an exposure to modern management practices in the public sector.
FORMAT: WebCT
PREREQUISITE: MGMT 2303.03
MGMT 3201.03: Financial Management.
This course is an introduction to the techniques and core principles for making optimal financial decisions for profit, not for profit and public sector organizations. The emphasis is on understanding the role of finance in an integrated management framework. Concepts covered include stakeholder analysis, financial planning, valuation and investment, financial statements, and financial markets.
PREREQUISITE: ECON 1001.03, ECON 1002.03, MGMT 2303.03, MGMT 2304.03
EXCLUSION: COMM 2202.03 and COMM 2203.03
MGMT 3308.03: Managing the Family Enterprise.
The course relies on field projects, guest speakers, case studies, videos, research papers and student case discussions to explore the territory of managing family businesses.
PREREQUISITE: MGMT 2303.03
MGMT 3309.03: Management Skills Development.
This course will expose students to key knowledge, skills, and attributes (KSAs) considered critical to managerial success. Such an exposure is designed to provide the students with behaviours which will help ensure that, when managing human resources, staff will perform at or near peak capabilities. Topics include: understanding the successful manager needs to know, understanding personal selves, communication, interpersonal negotiations, goal setting, managing innovation and change, handling conflict and anger, performance evaluation,
counselling and feedback, and management attitudes needed for success. Significant amounts of classroom time will be devoted to behaviour modeling exercises, role plays, case studies, and group discussions.

**FORMAT**: Lecture/discussions/live-class activities

**PREREQUISITE**: MGMT 2300.03 and MGMT 2304.05

**CROSS-LISTING**: COMM 3300.03

**MGMT 3320.03**: Organizational Theory.

In this course we will examine how organizations function, how the environment in which they operate changes and how organizational design and change strategies can increase their effectiveness. The objective of the course is to provide students with conceptual skills to understand organizations and practical skills to influence organizational behavior.

**PREREQUISITE**: MGMT 2303.03, MGMT 2304.05

**EXCLUSION**: COMM 4306.03

**MGMT 3400.03**: Introduction to Real Estate Management.

The purpose of this course is to provide students with an overview of the various aspects of property management in the Canadian environment. Topics include: Residential Management, Building Operations, Lease Programs, and Initiatives, Facility Management, and Site Development.

**PREREQUISITE**: Mgmt 2101 and Mgmt 2102 or Comm 2111, 2201 and 2205

**MGMT 3501.03**: Operations Management.

This course introduces the student to some of the standard techniques used in managing operations in manufacturing, services, as well as non-profit organizations. Topics include: inventory, supply chain, project management, quality and operations. Cases are used to build general skills, illustrate the application of techniques and general approaches to managing operations in the practical work environment.

**PREREQUISITE**: MGMT 1000.03, MGMT 1001.03, MGMT 2401.03, MGMT 1500.03, MGMT 3201.03

**EXCLUSION**: COMM 3401.03

**MGMT 3601.03**: Information in a Networked World.

This course provides an introduction to the economic, political, and social dimensions of today’s networked information economy. It considers the historical development of information and knowledge production, issues related to control versus the free flow of information, the ethical and legal aspects of information management, and organizational use of information management for storing and processing information, managing knowledge, and making decisions.

**PREREQUISITE**: MGMT 2601.03

**MGMT 3602.03**: Professional Communication Skills.

This course will introduce students to the broad range of written and oral communication skills needed by managers, including how to adapt a document or presentation for particular audiences and purposes; how to select a suitable method of organization, how to make good use of graphics, how to work effectively as part of a collaborative project team. Students will have the opportunity to practice their communication skills and techniques in small groups, and in formal presentations before the whole class.

**PREREQUISITE**: Writing Requirement

**EXCLUSION**: COMM 1701.03 and COMM 1702.03 or (LIBS 1002.03 and LIBS 1003.03 or INFO 1002.03 and INFO 1003.03) or (MGMT 1002.03 and MGMT 1003.03)

**RESTRICTION**: Third-year student

**MGMT 3603.03**: Beyond Google.

Contextually relevant information is essential to support decision making and strategic planning by individuals, groups, and organizations. This course discusses the theory and practice of searching for information. From the level of searches assessment through systematically scanning through electronic, print and human sources effectively, efficiently and ethically. The use of technologies to streamline search processes will be emphasized, as well as the behavioral, affective and cognitive aspects of human information behavior.

**PREREQUISITE**: MGMT 2601.03

**MGMT 3620.03**: User-Centred Design.

This course takes a human-centred perspective in an analysis of the design of the technologies we use, from our cell phones to web pages and the tools of everyday life. Throughout the course term, students will examine what makes good and bad design and will explore how to integrate ultimate use into the design process. Students will learn how to use simple prototyping techniques and how to evaluate interfaces.

**FORMAT**: Lecture/discussions/live-class activities

**PREREQUISITE**: MGMT 1601.03 or permission of instructor.

**MGMT 3701.03**: Resource/Environmental Problem-Solving 1: Sustainable Ecosystems.

The course introduces students to concepts and methods for analyzing ecosystem sustainability across a spectrum of intended use from full legal protection to intensive urban and industrial development. Students learn how the abiotic and biotic components of the environment interact, and how to integrate analyses of biodiversity, soil, air, and water in assessing ecosystem sustainability. Climate change is explored in a major driver of ecosystem change. A range of management and policy mechanisms for protecting ecosystems and fostering their sustainability in the face of multiple stresses is explored.

**PREREQUISITE**: MGMT 1700.06 or ENVs 1000.06 or ENVs 1001.06 or MGMT 1502.03 and MGMT 2702.03

**MGMT 3702.03**: Resource/Environmental Problem-Solving 2: Sustainable Industries.

The course introduces students to concepts and methods for analyzing industrial sustainability based on both renewable (e.g., forests, fisheries, agriculture) and non-renewable (e.g., minerals, fossil fuels) resources. Students learn how natural resources are managed and used, and how sustainable businesses and innovative economic enterprises can be based on sustainable resource use. A range of management and policy mechanisms for ensuring resource sustainability is explored.

**PREREQUISITE**: MGMT 1700.06 or ENVs 1000.06 or ENVs 1001.06 or MGMT 1502.03 and MGMT 2702.03

**MGMT 3802.03**: Public Policy.

This course serves as an introduction to the public policy process with an emphasis on the interplay between policy and the four thematic areas of study and professional practice upon which the Faculty of Management has been formed – the private sector, the environment, the public sector and information technology. Students assume the role of a policy analyst during the course and pursue a policy problem of their choosing through the policy process that culminates in a policy project briefing and paper.

**PREREQUISITE**: MGMT 2601.03 and MGMT 2602.03 or equivalent political science courses with a focus on Canada, with the permission of the instructor.

**MGMT 3810.03**: Government Policy Toward Business.

The focus of this course is twofold: first, how governments shape business behaviour through policy, regulation, state ownership, and other forms of intervention; and secondly, how collaboration is a growing reality among public sector and private sector organizations and the implications for each sector and society as a whole. The course aims to understand the fundamental difference between the public interest and the private interest and how each are served through contemporary governance systems involving public, private and civic sectors. While the emphasis will be on the Canadian environment, a comparative perspective will also be used in light of many issues that are increasingly transnational in scope. Students will be able to develop a critical view of government interventions and also get a sense of what's been and where government action is warranted and where it is not.

**FORMAT**: Lecture/seminar

**PREREQUISITE**: MGMT 2601.03, MGMT 2602.03, ECON 1101.03, ECON 1102.03 or equivalent

**MGMT 3902.03**: Starting Lean.

This course provides real-world, hands-on learning on what it's like to actually start a scalable company or venture. This course is not about how to write a business plan. It's not an exercise on how smart you are in a classroom, or how well you use the research library to size markets. And the end result is not a PowerPoint slide deck for a VC presentation.

This is a practical course – essentially a lab, not a theory or 'book' course. You will be putting your hands dirty talking to customers, partners, and competitors, as you encounter the chaos and uncertainty of how a startup actually works. You'll work in teams learning how to turn a great idea into a great company. You'll learn how to use a business model to brainstorm each part of a company and customer development to get out of the classroom to see whether anyone other than you would want/use your product. Each day will be a new adventure outside the
Managing a project and will learn to adapt to varying financial, political and such as time, cost, and scope. Students will gain insight into the realities of project team setting. The course also introduces theories and practices of project applications as well as an actual experience of project management in a practical environment. The course is designed to introduce internship students to aspects of career development and preparation for their internship experience. Upon acceptance into the Bachelor of Management Optional Internship Program (Winter Term), students register for MGMT 4895 for the Fall Term. This course is designed to introduce internship students to aspects of career development and preparation for their internship experience. NOTE: This course carries no credit hours. Details on the Bachelor of Management Internship Program are available at www.dal.ca/mcs/internship.

MGMT 4985.03: Internship Prep Seminar.

The optional internship will take place between academic year 3 and the final academic year. It is designed to offer opportunity to combine relevant job experience with classroom studies. Students can work with professionals in their chosen field which will increase employability after graduation. NOTE: This is a Pass/Fail course with only a maximum of six credit hours to be applied to the Bachelor of Management degree.

MGMT 4986.03: Management Internship.

The optional internship will take place between academic year 3 and the final academic year. It is designed to offer opportunity to combine relevant job experience with classroom studies. Students can work with professionals in their chosen field which will increase employability after graduation. NOTE: This is a Pass/Fail course with only a maximum of six credit hours to be applied to the Bachelor of Management degree.

MGMT 4987.03: Management Internship.

The optional internship will take place between academic year 3 and the final academic year. It is designed to offer opportunity to combine relevant job experience with classroom studies. Students can work with professionals in their chosen field which will increase employability after graduation. NOTE: This is a Pass/Fail course with only a maximum of six credit hours to be applied to the Bachelor of Management degree.

MGMT 4988.03: Management Internship.

The optional internship will take place between academic year 3 and the final academic year. It is designed to offer opportunity to combine relevant job experience with classroom studies. Students can work with professionals in their chosen field which will increase employability after graduation. NOTE: This is a Pass/Fail course with only a maximum of six credit hours to be applied to the Bachelor of Management degree.

MGMT 4999.03: Management Internship.

The optional internship will take place between academic year 3 and the final academic year. It is designed to offer opportunity to combine relevant job experience with classroom studies. Students can work with professionals in their chosen field which will increase employability after graduation. NOTE: This is a Pass/Fail course with only a maximum of six credit hours to be applied to the Bachelor of Management degree.
MGMT 4901.03: Managing the Venturing Process.

Managing the Venturing Process is a capstone course that explores the strategic elements required to venture successfully. By linking theory and practice, the course is designed to familiarize students with entrepreneurial strategies for the emerging venture, for the growing venture, and for sustaining growth in the established venture. Venturing will be explored in the context of both for-profit and not-for-profit objectives and will examine nurturing single entrepreneurs as well as organizational entrepreneurs. As this is a capstone course, students will be expected to use knowledge acquired in other business courses.

PREREQUISITE: MGMT 3907.03 or COMM 3307.03
CROSS-LISTING: COMM 4301.03
Faculty of Medicine

Office of the Dean of Medicine
Location: Room C-205, Clinical Research Centre
5849 University Avenue
PO Box 15000
Halifax, NS B3H 4R2
Telephone (902) 494-6592
Fax: (902) 494-7119

Admissions and Student Affairs Office
Location: Room C-132, Lower Level, Clinical Research Centre
Telephone: (902) 494-1874
Fax: (902) 494-6369

Academic and Administrative Staff
Dean
Marrie, T., MD
Senior Associate Dean
Smith, P., MD, Medical Education
Associate Deans
Gorsky, D., MBA, Operations and Policy
Johnston, G. C., PhD (York), Research
LeBlanc, C., Continuing Medical Education
Matte, M., Undergraduate Medical Education
Stercus, J., MD, Dalhousie Medicine (New Brunswick)
Warren, A., MD, MSc, FRCPC, Postgraduate Medical Education

Assistant Deans
Darvash, S., MD, Research (Clinical Department)
Feld, S., MD, Undergraduate Medical Education Clerkship
Fennelly, P., Student Affairs, DANNB
Lambert, T., Postgraduate Medical Education (DMDNB)
McLeod, R., Graduate and Postdoctoral Studies
Reiman, A., MD, Research Dalhousie Medicine (New Brunswick)
Sutton, E., MD (Dalhousie), Admissions and Student Affairs
Tachfin, M., Admissions and Student Affairs
Wenzel, A., Curt, BA (UNB), BA (DHS), Operations
West, M., Research (Clinical Trials)

Academic Director
Stulhofer, I., Director, Student Advisor Program

Administrative Directors/Staff
Forward, S. D., BComm (SMU), Admissions and Student Affairs
Holm, B., BSc (Acadia), MEd (Dalhousie), Learning Research Centre
Love, S., MEd, Program Manager, Undergraduate Medical Education
MacDonell, E., CME
MacNeil, C., CMA, Finance
Patterson, G. J., BSc (UNB), MSc (Dalhousie), ISP, Medical Informatics
Pellham, R., DME
Powell, G., CMA, IT
Powell, J., BA, MAPMA, Performance and Accountability
Powell, J., BSc (Dalhousie), BEd, MEd (MSVU), Human Resources
Ross, C., Research Director
Silver Smith, C., Postgraduate Medical Education

Dalhousie Medical Research Foundation
Edwards, A., Executive Director
Meric, D., Administrative Assistant

Faculty Council
Clark, A. J.
Dupuis, D.
Johnston, B.
Kartan, B.
Khan, N.
Murphy-Scarbrough, L.
Nassar, B.
Nolan, M. (Chair)
Pottle, R.
Pulikkanan, T.
Qureshi, A.
Vaughan, P.
Ex officio: President, Dean, Associate and Assistant Deans, Faculty Secretary, President of Medical Students’ Society, President of PARI-MP, and Graduate Student Society Representative.

I. General Information
Dalhousie Medical School was organized in 1868, but medical teaching was carried out by the independent Halifax Medical College from 1875 to 1911, when the Faculty of Medicine was re-established by the University.

The Faculty provides a complete medical training leading to the degree of Doctor of Medicine (MD). Nationally accredited postgraduate training in Family Medicine and specialty training is provided in University-affiliated hospitals in Nova Scotia, Prince Edward Island and New Brunswick. Continuing Medical Education is provided to the practitioners of the three Maritime Provinces.

The Faculty is fully accredited by the Liaison Committee on Medical Education and the Committee on Accreditation of Canadian Medical Schools.

The Medical School has strong research programs in basic biomedical sciences, clinical sciences, population health and medical education.

A. Mission Statement
Serving Maritime Canada, the Faculty of Medicine enables excellence in health care through our medical education and research programs in partnership with government, health authorities and health care providers.

Faculty of Medicine
undergraduate.book  Page 461  Wednesday, March 12, 2014  12:03 PM

Medical Neuroscience

Location: Department of Medical Neurosciences
126, 13th, and 14th Floors
PO Box 1000
Halifax, NS B3H 4B2
Telephone: (902) 444-1234
Fax: (902) 444-1212

Dean
Marie, T. MD

Dr. D.G.L. Campbell Professor and Head of Department
Baldridge, W. H., BSc (Toronto), PhD (McMaster)

Professors
Baldridge, W. H., BSc (Toronto), PhD (McMaster)
Benz, M., BSc, MSc, MB, BCH, B. C. R. C. S. (Munich, Germany)
Brownstone, R. M., BSc, MD, PhD (American)
Clarke, D. B., BSc (McGill), MD, FRCPC (Montréal)
Currie, B. W., BSc, MSc, MD (Québec)
Dawson, S. MD (Dollard-des-Ormeaux), MD (McGill)
Hopkins, D., BSc, MSc, MD (McMaster), Post retirement appointment
Kalafat, B., MD, PhD (Zagreb, Yugoslavia)
Kerr, I., BSc, MSc (Dollard-des-Ormeaux), MD (Dollard-des-Ormeaux), Post retirement appointment
Levesque, S., BSc, MSc, MD (Ottawa), Post retirement appointment
Nunn, B., BSc, MA, MD (London)
Rothman, N. F., BSc, MD (Ottawa), Post retirement appointment
Seth, K., MD (Kingston, Ontario), Post retirement appointment
Smith, J. F., BSc, MSc, MD (University of British Columbia)

Associate Professors
Atkinson, G., BSc (Dollard-des-Ormeaux)
D’Arcy, R., BSc (Victoria), MSc, PhD (Dollard-des-Ormeaux)
Perrott, T., J. BSc, PhD (Western)
Schneider, M., BSc, MSc, PhD (Dollard-des-Ormeaux), Post retirement appointment
Singh, G., BSc, MSc, PhD (University of British Columbia)

Assistant Professors
Ithalanda, W., BSc, MSc, PhD (Montreal)
Iulianella, A., BSc, MSc, MD (Montreal, Canada), Post retirement appointment
Zhang, Y., BSc, MSc (Beijing), PhD (Cambridge)

The Department of Medical Neurosciences provides facilities for advanced study and research in Neuroscience, Histology, Embryology, Cell Biology, Neuroendocrinology and Evolutionary Biology. The goals of the graduate program are to provide in-depth research training in a particular aspect of anatomy, neurobiology or a related field, and to introduce the student to methods of teaching anatomy.

I. Course Descriptions

ANAT 1010.03: Basic Human Anatomy.
This course is offered by the Department of Medical Neuroscience primarily to students in the Schools of Nursing (Section 01). A limited number of seats are available for Special Health Professions, Arts and Science, or Non-Degree students. Note that this course is also offered by DISTANCE EDUCATION (ANAT 1010.03, Section 02) during the Regular Term (Fall or Winter). Upon successful completion of this course, the student will be able to explain and describe, at a basic level, the gross anatomy and histology of the human body. This course uses an online Virtual Anatomy Laboratory.

ANAT 1020.03: Basic Human Anatomy.
This course is offered by the Department Medical Neuroscience primarily to students in Recreation, Physical and Health Education and Kinesiology. A limited number of seats are available for Special Health Professions, Arts & Science, or Non-Degree students. Note that this course is also offered by DISTANCE EDUCATION (ANAT 1020.03, Section 02) during the Regular Term (Fall or Winter). Upon successful completion of this course, the student will be able to explain and describe, at a basic level, the gross anatomy and histology of the human body. This course uses an online Virtual Anatomy Laboratory.

ANAT 2160.03: Introduction to Human Histology.
Histology is the study of the structure of cells, tissue and organ systems, and utilized information derived from both light and electron microscopy. This course complements studies in anatomy, cell biology, physiology, and biochemistry, broadening the understanding of how organisms function. Cross-listed with BIOL 2160.03.

ANAT 3421.03: Comparative Vertebrate Histology.
An advanced histology course surveying the whole range of vertebrate tissues and organs. The material is approached from a comparative perspective, considering tissue and organ histology throughout the major vertebrate classes. Cross-listed with BIOL 3421.03.
Pharmacology

Location: Sir Charles Tupper Medical Building
1610 College Street, 4th Floor
PO Box 15000
Halifax, NS B3H 4R2

Telephone: (902) 494-3435
Fax: (902) 494-1388

Dean
Marr, T., MD

Professors Emeriti
Gray, J. D., BSc, MD (Alb), FRCPC
Renton, K. W., BSc (Sir Gao Wun), MD (McGill)
Robertson, H. A., BA, MSc (Windsor), PhD (Cambridge)
Ready, J., M.D. (Queen’s), FRCPC
Peloza, M. M., BPham, MPH, PhD (Bari)
Wirtz, T. D., BSc, MSc, PhD (UWO), PhD (Brasil)

Professor and Head of Department
McMaster, C. R., BSc (Hons), PhD (Manitoba)

Professors
Dorosz-Wright, R. M., BSc, PhD (Dalhousie)
Howland, S. L., BSc (Concordia), MSc, PhD (Memorial)
Kelly, M. M., BSc, PhD (San Francisco)
Putnam, K. B., BSc (Ind), PhD (Manitoba)
Robertson, G. S., BSc, PhD (Dalhousie)
Sawin, P., BSc, MSc (Scollard), PhD (Queen’s)
Sisal, C., BSc, PhD (McMaster), PhD (Western)

Associate Professors
Dupont, D. J., BSc, PhD (Urbana)
Fawcett, J., BSc, MSc, PhD (McMaster), PhD (McGill)
Mcdougall, J. J., BSc (Hons), PhD (Glasgow U Scotland)
Rashid, S., BSc, MSc, PhD (Toronto)

Assistant Professors
Brass, K. R., BSc Honours (Saskatchewan), PhD (Queen’s)
Lopata, G. J., BSc (Saskatchewan), PhD (Memorial)
Pelissier, R., BSc, MSc (U of Massachusetts), PhD (U of Connecticut)

Cross Appointments
Acott, P., BSc (UNB), MD (Dalhousie) Major Appointment in Pediatrics
Gajewski, J. B., MD (Manitoba), FRCS(C), Urology, Major Appointment in Department of Urology
Ganesh, S. C., MD (Harvard), MA, PhD (McGill)
Gardakl, K., BSc, PhD (Erbswood), Major Appointment in College of Pharmacy
Grady, S. A., BSc, MSc, PhD (Dalhousie) Major Appointment in School of Health and Human Performance
Hall, R. L., BSc Pharm, MD (Dalhousie), FRCP(C), FCCP, Major Appointment in Department of Anesthesia
Hugg, G. R., BSc, PhD, MD (Dalhousie), FRCP(C), FCCP, Major Appointment in Department of Anesthesia
Lehnmann, C., MD (Hamburg U Berlin), Major Appointment in Anesthesia
Lynch, E. M., BSc, MD (Dalhousie), FRCP(C), FCCP, Major Appointment in Department of Anesthesiology
MacRae, T. H., BSc Biol (Mt. A), MSc, PhD (Windsor), Major Appointment in Biology
Munich, M., MD, PhD (Cagliari, Italy)
Pohlmann-Eden, B., MD, PhD (U of Heidelberg, Germany), Major Appointment in Neurology
Pollak, P., T. MD, PhD (Western Ontario), Major Appointment in Pharmacology and Cardiac Sciences, U of Calgary

Rajmatah, H. P. V., BSc (U of Penang), Sr. Lecturer, MSc (Iowa State U., USA), PhD (Geelong), Major Appointment Faculty of Agriculture
Rauk, R., BA (Toronto), PhD (Berkeley), Major Appointment in Departments of Psychiatry and Psychology

I. Introduction

Pharmacology is the study of the actions and fates of drugs in biological systems. Studies of the interaction of drugs with their receptors and the elucidation of the cellular mechanisms underlying the resulting responses are central to Pharmacology. It is also important to understand how drugs are handled in the body, why they produce adverse effects, and how they interact with each other. In addition, scientists often use drugs as tools to determine the basic mechanisms that underlie both normal and pathological conditions in biology. A solid understanding of the principles of Pharmacology is essential for any scientist who wishes to use drugs as tools properly. The experimental approaches used in Pharmacology are varied, ranging from bioassay, electrophysiology, chemical and biochemical analysis to molecular biology.

II. Degree Programs

Students intending to pursue graduate training in Pharmacology are encouraged to study Pharmacology at the undergraduate level. In addition, a solid background in pharmacology can open the door to employment in numerous sectors, most notably the pharmaceutical industry. The Department of Pharmacology does not offer an honors pharmacology degree program as such. However, it does provide courses that may be taken for credit within various other honors degree programs, including Biology, Biochemistry, Psychology (Neurosciences) and Microbiology and Immunology. In addition, students can conduct honors thesis research projects in the laboratories of Pharmacology faculty. Finally, undergraduate students may, with permission of their home department and the course instructor, take certain graduate specialty courses which are offered in the Department of Pharmacology.

III. Course Descriptions

BIOL 4404.03: Introduction to Pharmacology I.

This introductory course is designed to acquaint students with the action of drugs on physiological and biochemical functions in mammals including humans. Factors which affect the blood levels of drugs (absorption, distribution, metabolism, and elimination) will be considered, together with the mechanisms by which drugs act and their potential uses. The interaction of drugs with various body systems is covered, including the central and peripheral nervous systems and the cardiovascular system. Drugs that assist or regulate host defence mechanisms will also be studied.

FORMAT: Lecture 3 hours

PREREQ/SITE: MATH 1010.03 is recommended. Extra reading will be required of students without these courses.

CROSS-LISTING: PHAC 4406.03, BIOC 4406.03, and NES 4734.03

BIOL 4407.03: Introduction to Pharmacology II.

This course is intended to cover specific aspects of drug action not covered in BIOL 4404.03. The course includes: signaling by receptors and ion channels, sex hormones, pharmacokinetics and special populations, as well as considerations of drugs used for pain, immune diseases, diabetes, cancer and asthma.

FORMAT: Lecture 3 hours

PREREQ/SITE: BIOL 4404.03 (with a grade of B or better)
CROSS-LISTING: PHAC 4409.03, BIOC 4409.03, and NES 4736.03
EXCLUSION: BIOL 4405.03

462 Pharmacology
PHYSIOLOGY AND BIOPHYSICS

Location: Sir Charles Tupper Medical Building, 3rd Floor
PO Box 15000
Halifax, NS B3H 4R2

Phone: (902) 494-1685
Fax: (902) 494-3418

Dean
Marie, T., MD

Head of Department
Morgan, N., MSc, PhD

Undergraduate Student Advisor
Penney, C., BSc, PhD (Dalhousie)

Professors
Barnes, S. A., PhD (Berkeley)
Brown, R. E., BSc (Victoria), MA, PhD (Dalhousie) - Major appointment in Department of Physiology
Cowan, E. A., BSc (London), PhD (Leicester)
Fine, A., AB (Harvard), YSM, PhD (Penn)
French, A. S., MSc, PhD (Essen)
Holmes, D., MD (Harvard), PhD (Austin) - Department of Anesthesiology
Linlithgow, P., BSc (London), PhD (Leicester) - Undergraduate Coordinator
McDonald, T. F., BSc (Alta), PhD (Dalhousie), DSc (Imperial College)
Meinertzhagen, I. A., BSc (Aberdeen), PhD (St. Andrews) - Major appointment in Department of Physiology
Morgunov, N., BSc, MSc, PhD (Toronto)
Murphy, P. R., MSc, PhD (Dalhousie)
O’Brien, S., BSc (Mt. A), MSc (Toronto), MD (Dalhousie), FRCS (C) - Major appointment in Department of Surgery
Pavlov, E., MSc (Moscow State University), PhD (Inst. of Thromb & Exp. Blood vessels, Russia)
Quinn, T. A., BSc (McGill), MSc, MPhil, PhD (Columbia)
Rose, R., BSc, MSc, PhD (Calgary)
Schmidt, M., MD (Montreal) - Major appointment in Department of Anesthesia
Torkkeli, P. H., BSc, MSc, LcSc (Oulu), PhD (Alberta)
Wang, J., PhD (State University of New York) - Major appointment in School of Human Communication Disorders

Associate Professors
Anini, Y., BSc (Agadir), MSc, PhD (Pierre & Marie Curie University, France) - Graduate Student Coordinator
Canney, N., MB (Toronto) - Major appointment in Department of Psychiatry
Clarke, V., Licence Maitrise (Université de la Méditerranée-Marseille), Diplome d’Etudes Approfondies, PhD (Univeristé de Provence-Marseille, France)
Cowley, E. A., BSc (London), PhD (Leicester)
Kraus, S., MD (Zurich)
Morgan, N., BSc, MSc, PhD (Toronto)
Murphy, M. G., BSc, MSc, PhD (Dalhousie)
O’Brien, S., BSc (McA), MSc (Stirling), MD (Dalhousie), FRCS (C) - Major appointment in Department of Surgery
Rose, R., BSc, MSc, PhD (Calgary)
Tremlaw, F., BSc, PhD (Montreal) - Major appointment in Department of Otolaryngology
Wang, J., PhD (State University of NY) - Major appointment in School of Human Communication Disorders

Assistant Professors
Chen, R., BSc, MD (Dalhousie), FRCPC (C) - Major appointment in Department of Pediatrics
Chow, A., BSc (UBC), PhD (Dalhousie) - Major appointment in Department of Medicine
LeBlanc, E., MSc (Mount St. Vincent University), PhD (Inst. of Thromb & Exp. Blood vessels, Russia)
Luhovyy, B., MS, BSc, PhD (Mt. St. Vincent University, Ukraine), Mount St. Vincent University

Adjunct Professors
Kane, D. A., BS (Mount Allison), MD (Northern Michigan University), PhD (East Carolina University), St. Francis Xavier University
Lehockey, B., MS, BSc, PhD (Univ. of Franko National University, Ukraine), Mount St. Vincent University

Senior Instructor
Penney, C., BSc, PhD (Dalhousie)

I. Introduction
The Department of Physiology and Biophysics offers a wide range of undergraduate courses in addition to those restricted to students in the faculties of Medicine and Dentistry. Students who have previously taken biology, chemistry, physics will be best equipped to study physiology.

The courses listed below are aimed at providing the student with an understanding of the functioning of the human body. The Distance Education course 1000X/Y.06 is open to all students. PHYL 2030 or its component parts 2031.03 or 2032.03 is the recommended prerequisite for science students interested in taking higher level physiology courses. Students wishing to enrol in other specialized courses require permission from the Course Director or Department Head.

II. Course Descriptions

PHYL 1000X/Y.06: Human Physiology.
A full-credit Distance Education course equivalent to PHYL 1010X/Y.06. The functions of body organs and body systems, as well as integrative functions of the whole organism are examined. The course is based on a selected textbook and is supported by extensive blackboard content including a stop-by-stop guide, learning objectives, assignments, and virtual laboratories. The course is normally given in the Regular session (Sept - Apr), as well as in the Summer session (May - June). Distance Education courses have an additional fee over and above the listed tuition fees.

DIRECTOR: C. Penney
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

PHYL 1010X/Y.06: Human Physiology.
This is a full-credit introductory human physiology course equivalent to PHYL 1000X/Y.06. The functions of body organs and body systems, as well as integrative functions of the whole organism are examined. This course is intended primarily for students in the Health Professions.

DIRECTOR: C. Penney
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term. This course cannot be used as a prerequisite course for 3rd and 4th year physiology courses, nor as a corequisite for PHYL 2570.03 (Cellular Neurophysiology).

FORMAT: Lectures 3 hours/weekly assignments and readings/virtual labs, and

PHYL 1400.06: Human Physiology.
This course is designed to give Pharmacy students a broad understanding of normal human physiology using pathophysiological scenarios. Selected topics in physiology and biophysics will be presented in tutorials as case studies and in lectures. The central themes include: respiratory, endocrine/reproductive, gastrointestinal, immunological, nervous system, renal and cardiovascular. Students will be provided with means for self-evaluation throughout the unit. Evaluation will be based on tutorial performance as well as mid- and end-of-unit examinations. This course is only for Pharmacy students.

DIRECTOR: M. Murphy and other staff members

FORMAT: A 7-week comprehensive unit with 6 hours tutorial and 4 hours lecture per week.

PREREQUISITE: ANAT 1040X/1040Y

PHYL 2031.03: Human Physiology A.
The aim of this course is to understand the functional mechanisms of the human nervous and muscular systems, together with their clinical significance. The class covers the electrical and chemical properties of neurons and glia, and how neurons communicate with one another and with muscle cells. The physiology of autonomic, smooth and cardiac muscles will also be covered. It will review the sensory and higher integrative functions of the central nervous system, and the closely related autonomic nervous system. It will survey the physiology and functional anatomy of the somatosensory, visual, auditory, vestibular and chemical senses.
Both normal functions and selected pathologies of these systems will be discussed. The class also surveys important investigative techniques in neuroscience and includes a laboratory component. The overall objective is to provide a solid, factual foundation of knowledge in nerve and muscle physiology as well as their underlying principles.

**PHYL 2032.03: Human Physiology B.** The human body consists of billions of cells organized into a number of organ systems. The aim of this course is to explore how these organ systems (respiratory, cardiovascular, renal, gastrointestinal, endocrine and reproductive) function to allow us to live and carry out our daily activities. Although emphasis is on normal function there is also discussion of selected pathologies. An accompanying laboratory component underscores the clinical relevance of the physiology taught in lecture.

**PHYL 2570.03: Cellular Neurophysiology.** This course provides an introduction to the function of the nerve cells of the brain, which forms the basis for explaining features of brain function in terms of activity of individual cells and their membrane properties, as well as small networks of neurons. The course is designed for all students wishing to take more advanced courses in, or to major in, Neuroscience. Although the course covers topics of neuroscience at all levels, the content is directed towards cellular neuroscience; detailed coverage of the strictly developmental systems or molecular levels of neuroscience is provided in other courses.

**PHYL 3120.03: Exercise Physiology in Health and Disease.** The function and dysfunction of body organ systems are reviewed, and the short- and long-term consequences of these events to health are analyzed. Factors affecting physical performance are considered, and the preventive and therapeutic use of exercise for a wide range of clinical conditions is examined.

**PHYL 3320.03: Human Cell Physiology.** Events at the cellular and molecular level determine the activities of tissues, organs, and systems. This course examines key physiological principles at the cellular level, and uses this information to develop understanding of important body functions. Lectures focus on signaling within individual cells, membrane transport, electrical excitability and electrical signaling, communication between cells, osmotic contractility, and epithelial transport. **DIRECTOR:** P. Linsdell

**PHYL 3420.03: Sensory Physiology.** This course will describe the physiological and biophysical basis of human sensory systems (including vision, audition, taste, smell, and somosensory). Emphasis will be on the transduction of physical stimuli and the early neural processing that occurs in sensory cells and immediately associated tissues.

**PHYL 3520.03: Core Concepts in Medical Physiology.** Through didactic (lecture) and problem-solving (tutorial) sessions, students will gain a deep understanding of the functions of various organ system physiologies. In addition, the integration of a number of organ system functions will also be discussed. Where appropriate, the physiology of disease processes will underscore the consequences of a malfunctions of a physiological process. Organ systems covered include cardiovascular, renal, respiratory and gastrointestinal. A firm understanding of physiological principles is essential for any student contemplating a career in the health professions.

**PHYL 4000.03: Current Advances in Synaptic Function and Plasticity.** This course is designed to provide intermediate and advanced undergraduates with a basic understanding of the function of the endocrine system. The course will progress from a consideration of basic concepts and mechanisms to the physiological function of specific endocrine systems. Interactions between organ systems will be emphasized.

**PHYL 4324.03: Endocrine Physiology.** This course is designed to provide intermediate and advanced undergraduates with a basic understanding of the function of the endocrine system. The course will progress from a consideration of basic concepts and mechanisms to the physiological function of specific endocrine systems. Interactions between organ systems will be emphasized.

**PHYL 4328X/Y.03: Directed Project in Physiology.** This course allows the advanced undergraduate student to pursue more specialized work in physiology under the supervision of a faculty member. Students wishing to take this course must find a faculty member who is prepared to supervise a directed project. Before registering for this course, a student must provide the Course Director with a letter from the faculty member describing the project and agreeing to serve as supervisor. Credit approval will not be given until this is done.

**PHYL 4680.03: Cardiovascular Physiology.** This course provides an overview of key principles of cardiovascular physiology. Topics include cardiac anatomy/ultrastructure, cardiac pump-function, cardiac electrophysiology, excitation-contraction coupling, cardiac mechanics, cardiac energy metabolism and regulation of the vasculature. Cardiovascular disease will be addressed.

**PHYL 4000.03: Current Advances in Synaptic Function and Plasticity.** This course will provide an introduction to the function of the endocrine system. The course will progress from a consideration of basic concepts and mechanisms to the physiological function of specific endocrine systems. Interactions between organ systems will be emphasized.

**PHYL 4324.03: Endocrine Physiology.** This course is designed to provide intermediate and advanced undergraduates with a basic understanding of the function of the endocrine system. The course will progress from a consideration of basic concepts and mechanisms to the physiological function of specific endocrine systems. Interactions between organ systems will be emphasized.

**PHYL 4328X/Y.03: Directed Project in Physiology.** This course allows the advanced undergraduate student to pursue more specialized work in physiology under the supervision of a faculty member. Students wishing to take this course must find a faculty member who is prepared to supervise a directed project. Before registering for this course, a student must provide the Course Director with a letter from the faculty member describing the project and agreeing to serve as supervisor. Credit approval will not be given until this is done.

**PHYL 4680.03: Cardiovascular Physiology.** This course provides an overview of key principles of cardiovascular physiology. Topics include cardiac anatomy/ultrastructure, cardiac pump-function, cardiac electrophysiology, excitation-contraction coupling, cardiac mechanics, cardiac energy metabolism and regulation of the vasculature. Cardiovascular disease will be addressed.
Faculty of Science

Location: Life Sciences Centre (Biology) 8th Floor, Room 827 PO Box 15000
Halifax, NS B3H 4R2

Telephone: (902) 494-2373 Fax: (902) 494-1123
Email: science@dal.ca
Website: http://www.dal.ca/science

Dean
Moore, C., BA (Hons) (Cambridge), PhD (Cambridge), Professor (Psychology)

Associate Dean (Academic)
Walde, S., PhD (Calgary), Professor (Biology)

Assistant Dean (Research)
Brown, R. E., BSc (Victoria), PhD (Dalhousie), Professor (Psychology and Neuroscience)

Assistant Dean (Student Affairs)
Beauchamp, C., MSc (Memorial), BEd (Dalhousie), Senior Instructor (Biology)

Assistant Dean (Finance and Administration)
Jackson, D., BSc, MSc, PhD (Dalhousie)

Finance Coordinator
Hanna-Shea, D.

Administrative Assistant
Wells, J., BBA (MSVU)

Administrative Secretary
White, Jackie

Alumni and Donor Relations Officer
MacIvor, Dawna

Development Officer
Tracy, Shawn, BSc (Dalhousie)

I. Introduction
Dalhousie’s Faculty of Science, the primary centre in the region for science education and research, is part of the College of Arts and Science and consists of 10 departments and three programs. The principal mission of the Faculty is the discovery, organization, dissemination and preservation of knowledge and understanding of the natural world. The Faculty is dedicated to excellence in the pursuit of this mission. Students in the Faculty of Science develop a capacity for inquiry, logical thinking and analysis; cultivate an ability to communicate with precision and style; and acquire skills and attitudes for lifelong learning.

Undergraduate students in the Faculty of Science normally develop these abilities by concentrating their studies in one or more of the following areas: Biochemistry and Molecular Biology, Biology, Chemistry, Earth Sciences, Economics,

II. Departments and Programs of the Faculty of Science

Departments:
Biochemistry and Molecular Biology* (also in the Faculty of Medicine), Biology*, Chemistry*, Earth Sciences*, Economics*, Mathematics and Statistics*, Microbiology and Immunology* (also in the Faculty of Medicine), Oceanography, Physics and Atmospheric Science*, and Psychology

Programs:
Environmental Science*, Marine Biology*, Medical Sciences, Neuroscience

* Co-op Option available.
Biochemistry and Molecular Biology

I. Introduction

Biochemistry is the study of biological function at the molecular level. Although biochemical processes follow the basic laws of physics and chemistry, living organisms, because of their complexity, operate on a set of distinct principles that are not found in simple isolated chemical systems. The goal of biochemistry is to elucidate these principles. The Department offers an integrated series of courses that will provide students with an up-to-date view of modern biochemistry and molecular biology ranging from evolution of genomes to structure-function relationships in macromolecules to the dynamic aspects of metabolism. The core programs can be adapted to emphasize different biochemical specialties such as structural biology, metabolism, molecular biology and cell signaling. Students wishing to pursue advanced studies in Pharmacology or related sciences for which there is no undergraduate program can include courses in Physiology, Pharmacology and/or Pathology in their programs. Greater flexibility is available in combined degree programs of Biochemistry and Molecular Biology with another subject, most often with Chemistry, Microbiology, Biology, Neuroscience, Psychology or Environment, Sustainability and Society. Specific programs developed with the Department of Microbiology and Immunology provide coordinated studies of metabolism, enzymology and molecular biology with bacteriology, virology and immunology. These programs provide the foundation for molecular genetics, genetic engineering, biotechnology, biomedical research and medicine.

Laboratory Exercises: Some of the courses offered by the Department of Biochemistry and Molecular Biology include a laboratory component. The laboratory exercises provide an opportunity to develop laboratory skills, as well as to illustrate the theoretical principles taught in course. This process culminates in the fourth year, with a supervised research project required for honours Biochemistry and Molecular Biology students. Although no exercise involves live animals, experiments may use materials derived from animal sources, as well as from plants and micro-organisms. Laboratory experiments will often be performed in groups, but writing of reports is expected to be an individual effort, meeting the guidelines on plagiarism set out in the University Regulations in the Calendar and Department Policy on Plagiarism.

II. Degree Programs

NOTE: Students interested in a Biochemistry and Molecular Biology degree should first read the Undergraduate handbook on the Department website that describes all of the programs available and the special requirements relating to them. Degree programs must be planned in consultation with a departmental advisor (advisor@webmail.biochem.dal.ca)

A. BSc (20 credit) Honours in Biochemistry and Molecular Biology

This is a special concentrated Honours Program in which emphasis may be placed on different areas of biochemistry such as protein chemistry, metabolism or molecular genetics. Because Biochemistry and Chemistry are closely interwoven both conceptually and experimentally, the list of required courses includes both subjects. Additional chemistry courses beyond those required for the honours degree may be taken as electives. For entrance to BiOC 2300/03 and BiOC
2010.03, students require minimum grades of B- in BIOL 1010.03 and BIOL 1011.03, or CHEM 1011.03 and 1012.03 (or equivalents). Students should also note the minimum grade requirements specified in the prerequisites for all third year and some fourth year Biochemistry and Molecular Biology courses. Honours students must meet the general degree requirements of the Faculty.

Departmental Requirements

1000 level
- CHEM 1011.03 and 1012.03 (or equivalent) - minimum passing grade B-
- BIOL 1010.03 and 1011.03 (or equivalent) - minimum passing grade B-
- MATH 1000.03 or 1205.03 and MATH 1010.03 or 1060.03

2000 level
- BIOL 2020.03
- BIOL 2030.03
- BIOC 2300.03
- BIOC 2610.03
- CHEM 2201.03
- CHEM 2401.03 and 2402.03

3000 level
- BIOL 3300.03
- BIOL 3400.03
- BIOL 3700.03
- BIOC 3601.03 or one half credit in Biochemistry at the 3000 or 4000 level
- BIOC 3700.03
- BIOC 3801.03 and 3802.03

4000 level
- BIOC 4604.03 and 4605.03
- One and a half credits from BIOC 40XX, 43XX, 44XX, 45XX, 47XX
- One additional credit in BIOC at the 4000 level.

Other requirements
A pass is required in the Honours Qualifying examination. Students should also ensure that they have enrolled in any 2000 or 3000 level courses that are prerequisites for advanced courses they intend to take (see appropriate calendar entries).

B. BSc or BA (20 credit) Combined Honours in Biochemistry and Molecular Biology and Another Subject

Biochemistry and Molecular Biology may be chosen along with one of Biology, Chemistry, Environmental Science, Mathematics, Microbiology, Neuroscience, Psychology, or possibly another subject, for a Combined Honours Program.

Departmental Requirements

1000 level
- As specified in A except MATH 1000 and 1010 are required when combined with Chemistry

2000 level
- BIOL 2020.03
- BIOL 2030.03
- CHEM 2201.03 and 2402.03
- BIOC 2300.03
- BIOC 2610.03

3000 level
- BIOL 3300.03
- BIOL 3400.03
- BIOL 3700.03
- BIOC 3601.03 or one half credit in Biochemistry at the 3000 or 4000 level
- BIOC 3700.03
- BIOC 3801.03 and 3802.03

4000 level
- Two full credits in BIOC at the 4000 level
- One half credit in BIOC 3XXX or 4XXX

Consult an Undergraduate Advisor for details of recommended courses of study.

C. BSc or BA (20 credit) Major in Biochemistry and Molecular Biology

Please consult the Degree Requirements section II., for detailed information.

Although Dalhousie University does not require formal application for its 20 credit Major programs, this Department requires that all those registering with a view to completing such a degree must first consult with an Undergraduate Advisor from the Department of Biochemistry and Molecular Biology.

The department offers a four-year, 20-credit program of study leading to a BSc major degree. The program, while not designed as a preparation for graduate study in Biochemistry and Molecular Biology, nonetheless introduces students to all main aspects of the subject, as well as meeting the general degree requirements of the Faculty. Students should also note the minimum grade requirements specified in the prerequisites for all third year and some fourth year Biochemistry courses.

Departmental Requirements

1000 level
- BIOL 1010.03 and 1011.03 (or equivalent) - minimum passing grade B-
- CHEM 1011.03 and 1012.03 (or equivalent) - minimum passing grade B-
- One full credit in mathematics
- or, in lieu of the above, SCIE 15XX

2000 level
- BIOL 2020.03
- BIOL 2030.03
- BIOC 2300.03
- BIOC 2610.03
- CHEM 2201.03
- CHEM 2401.03 and 2402.03

3000 level
- BIOC 3300.03
- BIOC 3400.03
- BIOC 3700.03

4000 level
- A minimum of one full credit in BIOC at the 4000 level.

Although Dalhousie University does not require formal application for its 20 credit Major programs, this Department requires that all those registering with a view to completing such a degree must first consult with an Undergraduate Advisor from the Department of Biochemistry and Molecular Biology.

The department offers a four-year, 20-credit program of study leading to a BSc major degree. The program, while not designed as a preparation for graduate study in Biochemistry and Molecular Biology, nonetheless introduces students to all main aspects of the subject, as well as meeting the general degree requirements of the Faculty. Students should also note the minimum grade requirements specified in the prerequisites for all third year and some fourth year Biochemistry courses.

Departmental Requirements

1000 level
- BIOL 1010.03 and 1011.03 (or equivalent) - minimum passing grade B-
- CHEM 1011.03 and 1012.03 (or equivalent) - minimum passing grade B-
- One full credit in mathematics
- or, in lieu of the above, SCIE 15XX

2000 level
- BIOL 2020.03
- BIOL 2030.03
- BIOC 2300.03
- BIOC 2610.03
- CHEM 2201.03
- CHEM 2401.03 and 2402.03

3000 level
- BIOC 3300.03
- BIOC 3400.03
- BIOC 3700.03

4000 level
- One credit from BIOC 40XX, 43XX, 44XX, 45XX, 47XX
- One additional credit in BIOC at the 4000 level.

D. BSc or BA (20 credit) Double Major in Biochemistry and Molecular Biology and Another Subject

*See notes in C, above.

The Department will approve the combination of Biochemistry with a wide variety of other fields of study, subject to confirmation by an Undergraduate Advisor from the Department of Biochemistry and Molecular Biology.

Departmental Requirements

1000 level
- as for Single Major, above

2000 level
- BIOL 2020.03
- BIOL 2030.03
- BIOC 2300.03
- BIOC 2610.03
- CHEM 2201.03
- CHEM 2401.03 and 2402.03

3000 level as for Single Major, above

4000 level
- A minimum of one full credit in BIOC at the 4000 level.

Consult an Undergraduate Advisor for details of recommended courses of study.
E. Co-operative Education in Biochemistry and Molecular Biology

Co-operative Education in Science (SCIE Co-op) is a program where academic study is combined with paid career-related work experience. Students alternate these work terms throughout their academic study terms and graduate with a Bachelor of Science Co-op. Science Co-op enables students to apply their knowledge directly while providing them with work experience that assists in making educated career choices. Students should apply to join Science Co-op before their second year of study. If accepted into the Science Co-op program, students are required to register for and attend the Science Co-op Seminar Series (SCIE 2800.00) in the fall term of the year they join.

See the “Co-operative Education in Science” section of this calendar, or http://www.sciencecoop.dal.ca, for information on Science Co-op such as Science Co-op requirements, eligibility, how to apply, deadlines and other related information.

For further information, please see http://www.sciencecoop.dal.ca

Co-op Academic Advisor in Biochemistry: Dr. McLeod
Email: roger.mcleod@dal.ca

F. Minor in Biochemistry and Molecular Biology

Students in other 20-credit programs may choose to include a Minor in Biochemistry and Molecular Biology in their program. Requirements are outlined in the College of Arts and Science Minors section of this Calendar starting on page 129.

G. Minors available to students in Biochemistry and Molecular Biology

Minor programs allow students to develop subject specialities in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year major or honours program.

Minor programs cannot be used to fulfill the requirements of a Minor program.

H. Diplomas, Certificates, and Language Proficiency

Certificates

In combination with a BSc in Biochemistry and Molecular Biology, there are several certificates of completion that can be obtained to emphasize areas of proficiency. Courses counted toward a Major, Honours or Minor program may also be used to fulfill the requirements of a Certificate. For a complete list and details refer to the College of Arts and Science Degree Requirements starting on page 129 of the catalog.

III. Course Descriptions

The Department also teaches students in Dentistry and Medicine; these courses are described in the appropriate sections of the catalog.

NOTE: Not all courses are offered every year. Please consult the current timetable for this year's offerings.

BIOC 1420.03: Introductory Biochemistry for Nursing Students

Topics discussed include the structure, biosynthesis and functions of biologically important compounds, enzymes, control of metabolism, genetic engineering and nutrition. Medical aspects are stressed.

NOTE: This course cannot be used as a prerequisite for any other biochemistry course and is not normally accepted by Faculties of Dentistry or Medicine in fulfillment of the requirement of biochemistry course for admission.

FORMAT: Lecture 3 hours, tutorial 2 hours

RESTRICTION: This class is restricted to students in the BScN and BHSc programs.

BIOC 2300.03: Introduction to Biochemistry

This course surveys basic topics and concepts of Biochemistry. The structures, properties and metabolic inter-relationships of proteins, carbohydrates and lipids are considered together with an introduction to nutrition and metabolic control. Although mammalian examples predominate some consideration of special aspects of biochemistry of microorganisms is included.

COORDINATOR: D. Byers

NOTE: Students are advised to also take CHEM 2401.03 and 2402.03, or CHEM 2441.03. CHEM 2441 does not satisfy the prerequisite requirement for BIOC 3300.03 and BIOC 3700.03.

FORMAT: Lecture 3 hours

PREREQUISITES: BIOL 1010.03 and 1011.03 (or equivalent), CHEM 1011.03 and 1012.03 (or equivalent), all with grades of B- or higher, or instructor's consent.

EXCLUSION: BIOC 2200.03

BIOC 2310.03: Introductory Biochemistry Lab.

An introduction to fundamental techniques in Biochemistry through the exploration of the properties of essential biomolecules. This course is intended for students in Biochemistry and Molecular Biology and Microbiology Programs.

FORMAT: Lab 3 hours

PREREQUISITE: BIOL 1010.03 and 1011.03 (or equivalent), CHEM 1011.03 and 1012.03 (or equivalent), all with grades of B- or higher, or instructor's consent.

EXCLUSION: BIOC 2200.03

BIOC 2610.03: Introduction to Biochemistry for Nursing Students

This course covers synthesis and catalysis of carbohydrates, lipids and some nitrogen compounds. Metabolic regulation is emphasized, including factors influencing the rate at which compounds flow through selected pathways. compartmentalization of, inter-relationships between and environmental impact on metabolic pathways are considered. Laboratory exercises examine the techniques used to study metabolic pathways.

COORDINATOR: R. McLeod

FORMAT: Lecture 3 hours, lab 3 hours

PREREQUISITE: BIOC 2300.03 and BIOC 2402.03 (both with grades of B- or higher), BIOL 2020.03 and BIOL 2030.03 and CHEM 2401.03 and CHEM 2402.03, or instructor's consent.

BIOC 3300.03: Intermediary Metabolism.

This course covers synthesis and catalysis of carbohydrates, lipids and some nitrogen compounds. Metabolic regulation is emphasized, including factors influencing the rate at which compounds flow through selected pathways. compartmentalization of, inter-relationships between and environmental impact on metabolic pathways are considered. Laboratory exercises examine the techniques used to study metabolic pathways.

COORDINATOR: R. McLeod

FORMAT: Lecture 3 hours, lab 3 hours

PREREQUISITE: BIOC 2300.03 and BIOC 2402.03 (both with grades of B- or higher), BIOL 2020.03 and BIOL 2030.03 and CHEM 2401.03 and CHEM 2402.03, or instructor's consent.

BIOC 3400.03: Nucleic Acid Biochemistry and Molecular Biology

This course focuses on the relationship of structure to function in RNA and DNA. Methods for studying the primary, secondary, and tertiary structures of nucleic acids are explored in lectures and in the laboratory. Topics covered include enzymatic mechanisms for biosynthesis, reactivation, depurination, repair of nucleic acid molecules, and processes of replication, transcription, and translation. Nucleic acid biochemistry is emphasized as a basis for understanding storage and transfer of biological information.

COORDINATOR: J. Archibald

FORMAT: Lecture 3 hours, lab 3 hours

PREREQUISITE: CHEM 2401.03 and CHEM 2402.03, or CHEM 2441.03, BIOL 2020.03 and BIOL 2030.03 (both with grades of B- or higher), BIOC 2300.03, or instructor's consent.
BIOC 3620.03: Experiential Learning in Biochemistry and Molecular Biology.
This course is an outside the classroom learning experience in which the student works in a research laboratory an average of one day per week acquiring biochemistry or molecular biology knowledge and skills.
COORDINATOR: M. Dobson
NOTE: To register in this course, students must first find a faculty member from the Department of Biochemistry & Molecular Biology willing to supervise the student. Grading is Pass/Fail.
FORMAT: A minimum of 72 hours for the term, representing at least 6-8 hours weekly, working in a research laboratory, an activity log and a final written report.
PREREQUISITE: BIOC 3590.03, BIOC 3600.03, BIOL 2400 and BIOL 2402. EXCLUSION: The following may not be used towards BIOC 3620: lab work that is part of another scheduled course at a learning institution, an internship, a co-op or a research experience.
FORMA T: Lecture 3 hours, labs 3 hours
BIOC 3700.03: Biomolecular Chemistry.
The course covers structural and functional properties of biomolecules, including the physical basis for these characterization, thermodynamic principles of protein folding and biomolecular interactions, and the kinetics and mechanisms of enzyme catalysis.
FORMAT: Lecture 3 hours, labs 3 hours
PREREQUISITE: BIOC 3900.03, 3910.03, CHEM 2401.03, and CHEM 2402.03 (all with a grade of B or higher), or instructor's consent
EXCLUSION: BIOC 3800.03.
BIOC 4001.03: Special Topics in Biochemistry.
Students interested in topics not covered in formal courses may ask the department for special courses to meet their needs. An Undergraduate Advisor will assist students to ascertain if faculty expertise is available to direct reading and the preparation of papers and seminars in a particular subject area.
COORDINATOR(S): C. Tao
PREREQUISITE: BIOC 3300.03, 3400.03, and 3700.03 (average of B or higher and consent of coordinator)
BIOC 4100.03: Bioinformatics.
This course presents the theory and practice of bioinformatics. Topics include: rate of mutation, sequence alignment, database searching, phylogenetic analysis, bioinformatic tools for analyzing genes, genomes and proteins.
FORMAT: Lectures 3 hours with some computer-based labs.
PREREQUISITE: BIOC 3400.03 or instructor's consent
FORMA T: Lecture/BIOC 5000.03
BIOC 4207.03: Molecular Mechanisms of Cancer.
The course focuses on the molecular mechanisms of cancer. Topics include: receptors and downstream signaling, oncogenes and tumor suppressors, cancer metastasis and angiogenesis, cell cycle control, and apoptosis.
FORMAT: Lectures, student presentations, discussion
PREREQUISITE: Minimum grades of B in a 3000 level Biochemistry class and another 3000 level Biochemistry, Microbiology or Pathology class. Permission of instructor required.
FORMA T: Lecture/BIOC 5027.03 and MCI 4927.03 or 4927.05
BIOC 4302.03: Biochemistry of Lipids.
The biochemistry and metabolism of a variety of lipids is studied, especially those, such as fatty acids, glycerolipids, eicosanoids, steroids and phospholipids, with specialized physiological or lipid-second messenger functions. Intracellular and inter-tissue transport and regulatory processes are emphasized. The chemistry and physics of insoluble lipids in an aqueous environment are explored and problems in the interaction of lipids with soluble and insoluble enzymes are considered.
FORMAT: Lecture 3 hours
PREREQUISITE: BIOC 3300.03 and 3700.03
BIOC 4305.03: Mechanisms of Signal Transduction.
The emphasis of this course is to introduce concepts and key mediators of signal transduction. Topics include protein kinases, tumour suppressors, enzymes, G-protein coupled receptors, calcium signalling, lipid signalling, integration of signalling cascades, cytokinetic reorganization, cellular mutation, apoptosis, anoikis, generic stability, and stem cell biology.
FORMAT: Lecture 3 hours, and presentations
PREREQUISITE: BIOC 3300.03, 3400.03, and 3700.03 or instructor's consent
ENCLUSION: BIOC 4360.03.
BIOC 4360.03: Nutritional Biochemistry.
Appropriate nutrition is essential for health and reflects the basic biochemistry of the organism. Changes in the human diet can impact health and disease. This course considers the principles of optimal nutrition in a biochemical context and the role of nutrition in disease as it pertains to nutrition, the organ system or organ systems.
FORMAT: Lectures/student presentations.
PREREQUISITE: BIOC 3300.03, BIOC 3400.03, BIOC 3700.03 or instructor's permission
BIOC 4403.03: Genes and Genomes.
This course discusses the organization of genes into genomes. It deals with (i) compartmentalization of genetic material in nuclear and organelar genomes, (ii) the structure, behaviour and origin of components of both nuclear and organelar genomes which are not genes (transposable and other repetitive elements, introns), (iii) genetic and physical methods for mapping genomes, and (iv) the significance of genetic organization and higher order chromosomal structure and function. The methodology and prospects of genomics are discussed at some length.
FORMAT: Lecture 3 hours
PREREQUISITE: BIOC 3400.03 or instructor's consent
FORMA T: Lecture/BIOC 5040.03
BIOC 4404.03: Gene Expression.
The different mechanisms for regulation of gene expression in bacterial and eukaryotic cells, and their viruses, are emphasized. Particular topics include genomic, transcriptional, and post-translational modes of regulation.
PREREQUISITE: BIOC 3400.03 or instructor's consent
FORMA T: Lecture/BIOC 5040.03
BIOC 4501.03: Medical Biotechnology I.
This course covers fundamental principles of biotechnology from a medical perspective. Topics discussed include: recombinant DNA technology, polymerase chain reaction-based applications, DNA microarrays, DNA sequencing, immunological, chemical, and biochemical techniques for the production of transgenic organisms, genetic engineering techniques, and the ethical issues of human and animal cloning, cloning, and genetic engineering. Students will write a term paper on a chosen topic.
FORMAT: Lecture 3 hours, discussions, presentations
PREREQUISITE: BIOC 3400.03 or instructor's consent
FORMA T: Lecture/BIOC 5015.03 and BIOC 5016.03
BIOC 4604.03: Research Project I.
This course requires original biochemical research in the laboratory of a faculty member. This course is intended to be taken in conjunction with BIOC 4605.03 and BIOC 4606.03. The work undertaken in this course is intended to be submitted as part of the thesis. A report is submitted at the end of the term.
COORDINATOR(S): R. Singer
NOTE: This course is intended to be taken in conjunction with BIOC 4604.03 and no credit can be given for one course without the other. The two research projects can be done outside the Department of Biochemistry and Molecular Biology. Prior approval must be obtained from the course coordinator.
FORMAT: Lab 1 day
PREREQUISITE: Permission of coordinator and a member of the Department who will serve as supervisor. At least a B average for BIOC 3300.03, 3400.03 and 3700.03.
BIOC 4605.03: Research Project II.
This course requires original biochemical research in the laboratory of a faculty member, and requires the equivalent of at least one day per week to be spent in the laboratory. A report is submitted at the end of the term.
COORDINATOR(S): R. Singer
NOTE: This course is intended to be taken in conjunction with BIOC 4604.03 and no credit can be given for one course without the other. The work undertaken in this course should be a continuation of that initiated in BIOC 4604.03 and hence the report submitted for BIOC 4605.03 may include data and analysis incorporated in the BIOC 4604.03 report. In exceptional cases the research course considers the principles of optimal nutrition in a biochemical context and the role of nutrition in disease as it pertains to nutrition, the organ system or organ systems.
FORMA T: Lecture 3 hours, labs 3 hours
project can be done outside the Department of Biochemistry & Molecular Biology. Prior approval must then be obtained from the course coordinator.

**BIOC 4700.03: Proteins.**

Our theme is the relationship between structure and function. The kinetic and thermodynamic determination of the protein fold is explored. Specific details of how form determines function in binding other molecules both small and large in number, and in energy transduction are provided. Protein evolution and turnover are examined.

**NOTE:** Some weeks, in addition to lectures, students will independently research and write about specialized topics suggested by the instructor and occasionally present these in class discussion group format.

**FORMAT:** Lecture 3 hours

**PREREQUISITE:** BIOC 3700.03 or CHEM 3601 AND CHEM 2301 AND CHEM 2304, all with grades of B or higher or instructor's consent.

**CROSS-LISTING:** BIOC 4701.03

**BIOC 4701.03: Enzymes.**

Fundamental principles of enzyme catalysis and its regulation are examined. Topics include enzyme kinetics, enzyme inhibition and inactivation, isotope effect measurements, site-directed mutagenesis, and the active site architecture and transition state stabilization of selected enzymes. Classic and current papers in the literature are reviewed and the experimental and conceptual approaches are critically appraised.

**FORMAT:** Lecture 3 hours

**PREREQUISITE:** BIOC 3700.03 or CHEM 3601 AND CHEM 2301 AND CHEM 2304, all with grades of B or higher or instructor's consent.

**CROSS-LISTING:** BIOC 4700.03

**BIOC 4702.03: Biophysical Characterization of Macromolecules.**

This course covers methods allowing determination of sub-molecular and atomic-level structure and dynamics of biomacromolecules in physiological settings (e.g. solution-state or lipid bilayers) including: fluorescence, electronic and vibrational circular dichroism and NMR spectroscopy; light vs. X-ray vs. neutron scattering; and, single molecule methods.

**FORMAT:** Lecture 2.5 hours Seminar/tutorial 0.5 hours

**PREREQUISITE:** BIOC 3700.03 or CHEM 3601 AND CHEM 2301 AND CHEM 2304, all with grades of B or higher or instructor's consent.

**RECOMMENDED:** PHYS 1200.03/1201.03 or 1300.06

**CROSS-LISTING:** BIOC 4703.03, CHEM 4602.03

**BIOC 4804.03: Introduction to Pharmacology I.**

This introductory course is designed to acquaint students with the actions of drugs on physiological and biochemical functions in mammals including humans. Factors which affect the blood levels of drugs (absorption, distribution, metabolism, and elimination) are considered, together with the mechanisms by which drugs act and their potential uses. The interaction of drugs with various body systems is covered, including the central and peripheral nervous systems and the cardiovascular system. Drugs that assist or regulate host defence mechanisms are also studied.

**COORDINATOR(S):** M.E.M. Kelly

**FORMAT:** Lecture 3 hours

**PREREQUISITE:** This course is restricted to third- or fourth-year students, or graduate students. Other students may be admitted with permission of the course coordinators. A previous class in biochemistry and in physiology is recommended. Extra studying will be required of students without these courses.

**CROSS-LISTING:** PHYS 4404.03, BIOG 4604.03, and NESC 4714.03

**BIOC 4806.03: Introduction to Pharmacology II.**

This course covers specific aspects of drug action not covered in BIOC 4804.03. This course includes: drug receptor signaling, ion channels, second messengers, G-proteins, plus specific consideration of drugs used for pain, inflammation, cancer, diabetes, asthma, and diseases of the thyroid, eye and gastrointestinal tract. Special pharmacological topics including addiction and drug abuse, treatment of Parkinson's disease, treatment of epilepsy and the use of stem cells in modern medicine are included.

**COORDINATOR(S):** D. Duper

**FORMAT:** Lecture 3 hours

**PREREQUISITE:** BIOC 4804.03 (with a grade of B or better)

**CROSS-LISTING:** PHYS 4409.03, BIOG 4607.03, and NESC 4716.03

**BIOC 4813.03: Biochemistry of Clinical Disorders.**

This course is an introduction to the pathophysiology of disease. It provides the clinical and biochemical background to disease groups and system disorders and the laboratory approaches to their diagnosis. Topics include cardiovascular, renal, gastrointestinal and hepato-biliary disorders, addiction, and acid-base, carbohydrate, lipid and amino acid disorders, endocrine and rheumatological diseases, as well as tumor markers and toxicology, blood and immune abnormalities.

**FORMAT:** Lecture and case discussion

**PREREQUISITE:** BIOC 3200.03 and BIOC 3201.03 and BIOC 3202.03 or consent of instructor

**CROSS-LISTING:** PATH 5101.03, BIOC 5811.03

**EXCLUSION:** BIOC 4811.03 and BIOC 4812.03

**BIOC 4835.03: Human Genetics.**

For science students with special interest in human genetics. Topics include errors of metabolism, human development, transmission genetics, DNA structure, gene function, mutation and chromosomal alterations, population genetics, genetics of immunity and cancer, genetic technology in medicine, and ethical and social issues related to medical genetics.

**COORDINATOR(S):** W.L. Grey

**FORMAT:** Lecture 5 hours, tutorial 2 hours

**PREREQUISITE:** BIOC 4800.03 or permission from instructor

**CROSS-LISTING:** BIOL 4035.03, 5035.03, PATH 5035.03

**BIOC 8891.00: Co-op work term 1.**

**BIOC 8892.00: Co-op work term 2.**

**BIOC 8893.00: Co-op work term 3.**
Biology

Location: Biology Department, Life Sciences Centre, 2nd Floor
1355 Oxford Street
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3515
Fax: (902) 494-3776
Website: http://www.dal.ca/biology

Dean
Mason, C., BA (Hons) (Cambridge), PhD (Cambridge), Professor (Psychology)

Chair
MacRae, T. H., MSc, PhD (Western)

Biology Majors Program Advisors
Bishop, T. (494-1696)
Cooper, M. (494-8436)
Gass, G. (494-8445)
Gibson, L. (494-8517)
McCarrick, M. (494-8702) (Biology Co-op Academic Advisor)
Staples, E. (494-2464)
Van Dommelen, J. (494-1584)
Welsh, E. (494-1110)

Biology Honours Program Advisors
Crossin, G. (494-4258)
McCarrick, M. (494-2735) (Honours Co-op)
Polubriak, B. (494-8333)
Wright, J. (494-6488)

Marine Biology Major Program Advisors
Gass, G. (494-8445)
Schreiber, B. (494-2296)
Schmidt, A. (494-1636)

Marine Biology Honours Program Advisors
Crossin, G. (494-4258)
McCarrick, M. (494-2753) (Honours Co-op)
Polubriak, B. (494-1833)
Wright, J. (494-6488)

Members of Biology Faculty

- Weight, J. M., PhD (MUN), Associate Professor
- BuzIOvskii, J. P., PhD (Texas A&M), Associate Professor
- Gannawarra, A., PhD (Oxford Brookes), Assistant Professor
- Herbsprung, C. M., PhD (Dalhousie), Assistant Professor
- Latta, R., PhD (Colorado), Assistant Professor
- Leitch, H. K., PhD (Kiel), Assistant Professor
- Pinder, A., PhD (Mass), Assistant Professor
- Romanuk, T. D., PhD (McMaster), Assistant Professor
- Simpson, A. G. B., PhD (Sydney), Assistant Professor
- Stone, S., PhD (York), Assistant Professor
- Worm, B., PhD (Kiel), Assistant Professor

Assistant Professors
- Cout, P., PhD (McGill), Assistant Professor
- Crossin, G., PhD (Dalhousie), Assistant Professor
- Stacpoole, C., PhD (UMass-Amherst), Assistant Professor

Stacpoole, C., PhD (UMass-Amherst), Director

Adjunct Professors
- Adl, S., MSc (UBC), PhD (Peru-VI), Adjunct Professor
- Bowes, W. D., PhD (UBC), BSc, Adjunct Professor
- Breck, H., BSc (Acadia), MSc (Memorial), PhD (UNB), Adjunct Professor
- Brown, D. T., BSc (Dalhousie), MSc, PhD (Dalhousie), Adjunct Professor
- Frenkel, A., BSc (Saskatchewan), MSc (Dalhousie), PhD (California), Adjunct Professor
- Jones, I., PhD (Alberta), Adjunct Professor
- Kelling, T., MSc (Dalhousie), PhD (Dalhousie), Adjunct Professor
- Leboeuf, N., PhD (Dalhousie), Adjunct Professor
- MacAllister-Irwin, N., PhD (Dalhousie), Adjunct Professor
- Pinder, A., PhD (Mass), Adjunct Professor
- Roy, D., PhD (University of Toronto), Adjunct Professor
- Shutler, D., BSc, MSc (Dalhousie), Adjunct Professor
- Stacpoole, C., PhD (UMass-Amherst), Adjunct Professor

Honorary Research Associates
- Horn, A., PhD (Toronto), Honorary Research Associate
- Wellmer, L., PhD (Dalhousie), Honorary Research Associate

Senior Instructors
- Beauchamp, C., BSc, MSc (Memorial), BEd (Dalhousie), Senior Instructor
- Bredemeier, R. P., PhD (McGill), Senior Instructor
- Carrel, L., BSc (Dalhousie), Senior Instructor
- Davidson, T., BSc (Dalhousie), Senior Instructor
- Donovan, J. A., BSc, MSc (Dalhousie), Senior Instructor
- Eddy, T., PhD (UVic), Senior Instructor
- Liu, H., PhD (China Agricultural University), Senior Instructor
- Park, J. S., PhD (Seoul), Senior Instructor
- Roy, D., PhD (Victoria), Senior Instructor
- Shutler, D., BSc, MSc (Dalhousie), Senior Instructor
- Smith, D., PhD (Dalhousie), Senior Instructor
- Tittensor, D., PhD (Dalhousie), Senior Instructor

Post Doctoral Fellows
- Elsdon, T., PhD (UVic), Post Doctoral Fellow
- Liu, H., PhD (China Agricultural University), Post Doctoral Fellow
- Roy, D., PhD (Victoria), Post Doctoral Fellow
- Tittensor, D., PhD (Dalhousie), Post Doctoral Fellow

Areas of Speciality of Biology Faculty
- Cell Biology: P. Côté, T. MacRae, B. Polubriak, A. Gannawarra, S. Stone
- Marine Biology: G. Gass, R. Scheibling, A. Schmidt, D. Walde, B. Pohajdak

- Biology 471
- Undergraduate Book — Page 471 Wednesday, March 12, 2014 12:03 PM
**I. Degree Programs**

The department offers the following degree programs in Biology:

- **BA or BSc (20 credit) Honours (Concentrated, Combined, or Multidisciplinary)**
- **BA or BSc (20 credit) Major**
- **BA or BSc (20 credit) Double Major**
- **BA or BSc (15 credit) Minor**

Departmental requirements for these programs are described below. In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section of this calendar.

Please note that a student is governed by the academic regulations in place at the time of initial enrolment as long as the degree is completed within the time permitted, and that subsequent changes in regulations shall apply only if the student so elects. Students applying the old academic regulations should consult the calendar of the appropriate year.

Students should plan their program of study carefully and are encouraged to do so in consultation with a departmental academic advisor.

The department also offers degree programs in Marine Biology. Please consult the Marine Biology section of this calendar.

* BSc Co-op option available.

**A. Co-operative Education Program in Biology**

The Department of Biology offers a Co-operative Education Program for Biology Major, Double Major, and Honours students.

Co-operative Education in Science (Science Co-op) is a program where academic study is combined with paid career-related work experience. Students alternate their work terms throughout their academic study terms and graduate with a Bachelor of Science, Co-op. Science Co-op enables students to apply their knowledge directly while providing them with work experience that assists in making educated career choices. Students can apply to join the Science Co-op Program at the end of either their first or second year. If accepted into the Science Co-op program, students are required to register for and attend the Science Co-op orientation seminar (SCIE 2000.03) in the fall term of the year they join.

See the “Co-operative Education in Science” section of this calendar, or visit http://sciencecoop.dal.ca, for information on Science Co-op such as Science Co-op requirements, eligibility, how to apply, deadlines and other related information.

Students interested in pursuing a Biology Co-op Degree should contact the Biology Co-op AcademicAdvisor, Mindy McCaville (Mindy.McCaville@dal.ca) DURING THEIR FIRST OR SECOND YEAR OF STUDY for program details. A limited number of students will be admitted into this program each year.

**B. BA or BSc (20 credit) Honours Biology**

(Concentrated, Combined or Multidisciplinary)

Students in a concentrative Honours program must take a minimum of nine and a maximum of 11 credits in their honour subject (Biology) above the 1000 level in addition to the general rules of the College of Arts and Science (see degree requirements in the College of Arts and Science section of this calendar).

**Departmental Requirements**

Admission to and graduation from the Honours program requires a B+ average (3.3) in the core program courses at the time of application, with no grade below a C. Furthermore, students must also have a cumulative B+ average (3.3) at the time of application and at graduation.

Students interested in the Honours program must do the following: At the end of their third year, students must have identified and gained the support of a Dalhousie or external faculty member who will supervise their thesis research. If students choose an external supervisor, they must make certain that the supervisor meets the basic criteria as identified by the honour committee (details about external supervisor suitability can be found on the honours homepage - see link below). With the supervisor’s input, the student must then draft a thesis proposal and submit it to the honours committee for approval. This proposal must be signed by both the student and the supervisor and submitted by April 30th. Students who do not meet this deadline will not be permitted to enrol in the Honours course (BIOL/MARR 4900). For students seeking a Co-op Honours degree, contact a Coop advisor for details about proposal submission. For information about who can serve as an honours supervisor, contact an honours advisor.

Regarding the specifics of the thesis proposal, it should: (a) very briefly review the background literature relevant to the student’s research topic; (b) present the specific questions, with clearly articulated hypotheses and predictions (if warranted), that will be addressed by the research; and (c) present an overview of the methods that will be used to address those questions, hypotheses, and predictions. The proposal should be 1-2 pages in length and must be signed by both the student and supervisor. Additional information about the proposal, and about the Honours program in general, can be found on the departmental website: http://biology.dal.ca/honours/

In addition to the University requirements for an Honours degree, students taking ANY TYPE of Biology Honours Program, even if Biology is the second subject of a Combined program, MUST take the following courses.

**Core Program Courses required in all Biology Honours Programs:**

**1000 level**

- BIOL 1010.03 or BIOL 1020.03 (minimum grade of C+)
- BIOL 1011.03 or BIOL 1021.03 (minimum grade of C+)
- CHEM 1011.03 and CHEM 1012.03
- OR: DSP (SCIE 15XX) (minimum grade of C+)

**2000 level**

- BIOL 2005.03
- BIOL 2006.03
- BIOL 2020.03
- BIOL 2030.03
- BIOL 2040.03
- BIOL 2045.03

**3000 level**

- At least one course from BIOL 3050.03, BIOL 3070.03 and BIOL 3079.03, and PHYL 2030X/306 (PHYL 2030X/306 will be counted as a second year level Biology credit)
- See recommendations under II. course Selection Guidelines

**4000 level**

- BIOL 4000X/406 (for those in Concentrated Honours and Combined Honours programs in which Biology is the major area of study)
- Honours Qualifying exams (graded as Pass/Fail and based on participation in BIOL 4000X/406 course and the Cameroon Conference for Honours students)
- NOTE: A minimum of one credits in Biology above the 3000 level, including two credits above the 2000 level are required for the Honours degree.

**Other Recommended Courses**

- PHYC 1300X/06 and PHYC 1200.03
- MATHSTATS 1400.05 and MATH 1001.03 or MATH 1215.03
C. BA or BSc (20 credit) Major in Biology

Departmental Requirements

1000 level
• BIOC 1010.03 or BIOC 3020.03 (minimum grade of C+)
• BIOC 1011.03 or BIOC 1021.03 (minimum grade of C+)
• CHEM 1011.03 and CHEM 1022.03
OR
• SCIE 1505.18, or SCIE 1515.36, SCIE 1520.30 or SCIE 1540.27 (minimum grade of C+)

2000 level
• BIOC 2020.03
• BIOC 2020.03
• BIOC 2040.03
• Any two of BIOC 2003.03, BIOC 2004.03, BIOC 2060.03
• One additional half (0.5) Biology credit at or above the 2000 level

3000 level
• Minimum of three full credits at or above the 3000 level for a BA
• Minimum of four full credits at or above the 3000 level for a BSc
• See recommendations under B, course Selection Guidelines

D. BA or BSc (20 credit) Double Major in Biology

Departmental Requirements

1000 level
• BIOC 1010.03 or BIOC 1020.03 (minimum grade of B-)
• BIOC 1011.03 or BIOC 1021.03 (minimum grade of B-)
• CHEM 1011.03 and CHEM 1022.03

2000 level
• BIOC 2020.03
• BIOC 2020.03
• BIOC 2040.03
• Any two of BIOC 2003.03, BIOC 2004.03, BIOC 2060.03
• One additional half (0.5) Biology credit at or above the 2000 level

3000 level
• Minimum of two Biology full credits at or above the 3000 level
• See recommendations under B, course Selection Guidelines

E. BSc or BA (15 credit) with Minor in Biology

Students in other 20 credit degree programs with a Minor in Biology is available to students in the Faculty of Science.

Departmental Requirements

• A minimum of 18 credit hours in Biology (BIOC) courses at the 2000 level or higher

Note that there are prerequisite requirements for entry into upper level Biology classes.

F. Minor in Biology

Students in other 20 credit degree programs may choose to include a Minor in Biology in their program. Requirements are outlined in the College of Arts and Science Minors section of this Calendar starting on page 129.

G. Minors available to students in Biology

Minor programs allow students to develop subject specialties in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year major or concentrated honours program (including co-op programs).

Students in a 20 credit BSc or BA program in Biology may choose to include a Minor selected from the list of approved Minors beginning on page 132 in this Calendar (note that courses counted toward your Major or Honours program cannot be used to fulfill the requirements of a Minor program).

H. BSc/Engineering or BA/Engineering Concurrent Programs

Students will normally complete the requirements for a 15 credit BSc or 15 credit BA, and the first two years of engineering studies leading to the Diploma in Engineering. The concurrent program can be completed in three years. Details are provided in the College of Arts and Science Degree Requirements in the calendar.

I. Diplomas, Certificates, and Language Proficiency Certificates

Certificates offered by the Biology Department:

Certificate in Animal Behaviour

The certificate program is a collaborative effort of both the Biology and Psychology departments. It provides students an opportunity to take, within their BA or BSc Honours or Major program, a set of courses and a research project that will accord them an animal behaviour specialization. Completion of the Certificate will be shown on a student’s transcript.

Certificate requirements:

1. A minimum grade of a B- is required in four mandatory courses:
   - NESC/PSYO 2160.03 Animal Behaviour
   - PSYO 2101.03 Statistical Methods 1 or Stat 2080.03 Statistical Methods for Data Analysis and Inference
   - BIOL 3063.03 Field Methods in Animal Behaviour or NESC/PSYO 3161.03 Measuring Behaviour

2. A grade of B- in two full credits of elective courses chosen from the following list. One of the two full credits must be at the 3000-4000 level.

2000 Level
- PSYO 2101.03 Statistical Methods 1 or Stat 2080.03 Statistical Methods for Data Analysis and Inference
- BIOL 3063.03 Field Methods in Animal Behaviour or NESC/PSYO 3161.03 Measuring Behaviour
- NESC/PSYO 2470.03 Systems Neuroscience

3000 Level
- BIOL 3067.03 Ecology and Evolution of Fishes
- BIOL 3622.03 Ornithology
- BIOL 3062.03 Behavioral Ecology
- PSYO 2160.03 Animal Behaviour
- BIOL 3630.03 Field Methods in Animal Behaviour or NESC/PSYO 3161.03 Measuring Behaviour
- BIOL 3626.03 Field Studies of Marine Mammals
- ANSC 2003.03 Companion Animal Behaviour
- BIOL 3632.03 Applied Field Methods in Fish Ecology
- BIOL 3633.03 Field Studies of Marine Mammals
- NESC/PSYO 2470.03 Systems Neuroscience

4000 Level
- BIOL 4000.03 Topics in Behavioural Ecology
- BIOL 4060.03 Marine Mammalogy
- BIOL 4003.03 Field Methods in Animal Behaviour or NESC/PSYO 3161.03 Measuring Behaviour
- BIOL 4007.03 Special topics (Animal Behaviour)
- BIOL 4006.03 Marine Mammalogy
- BIOL 4003.03 Field Methods in Animal Behaviour or NESC/PSYO 3161.03 Measuring Behaviour
- BIOL 4006.03 Marine Mammalogy
- BIOL 4007.03 Special topics (Animal Behaviour)

3. A grade of B- in one half credit or more of independent research in Animal Behaviour:

Students are encouraged to complete their Honours thesis on a topic in Animal Behaviour to fulfill this requirement.
Table 2. Theory-Based Courses (minimum of 1.5 credits from the following list)

BIOL/BIOL 3607.03 Ecology and Evolution of Fishes
BIOL/BIOL 3701.03 Marine Ecology
MGMT 3301.03 Resource and Environmental Problem Solving 1: Sustainable Ecosemotes
MGMT 3302.03 Resource and Environmental Problem Solving 2: Sustainable Communities
OCEA 3001.03 Introduction to Physical Oceanography
OCEA 3002.03 Introduction to Chemical Oceanography
PLAN 3010.03 Urban Ecology
SOSA 2200.03 Society, Politics and Culture
SOSA 3000.03 Social Change and Development
SUST 3000.03 Global Approaches to Environmental Decision-Making

Table 3. Field and Methods-Based Courses (minimum of 0.5 credits from the following list)

BIOL 2060.03 The Flora of Nova Scotia
BIOL/MARI 3003.03 Dynamics of Biological Oceanography
BIOL 3065.03 Plant Ecology
BIOL/MARI 3221.03 Diversity of Algae
BIOL/MARI 3301.03 Invertebrate Biology
BIOL 3217.03 Entomology
BIOL/ENV/ENVS/MARI 3603.03 Methods in Ecology
BIOL 3201.03 Field Survey of Territorial Biodiversity
BIOL 3622.03 Ornithology
BIOL/ENV/ENVS/MARI 3623.03 Applied Coastal Ecology
BIOL/ENV 3624.03 Urban Freshwater Systems
BIOL/MARI 3625.03 Field Studies of Marine Mammals
BIOL 3630.03 Field Methods in Animal Behaviour
BIOL/ENV/ENVS/MARI 3632.03 Applied Field Methods in Fish Ecology
BIOL/ENV/ENVS 3633.03 Spatial Information and GIS in Ecology
BIOL 3634.03 Agroecology
BIOL/ENV/ENVS/MARI 3644.03 Interdisciplinary Ecology and Evolution
BIOL 3665.03 Food Web Assembly and Modelling
BIOL 3666.05 Species Invasions
BIOL/MARI 3668.03 Scientific Diving Methods for Marine Ecology
BIOL 3762.03 Terrestrial Ecology
BIOL/MARI 3767.03 Ecology and Evolution of Fishes
BIOL/MARI 4060.03 Marine Mammalogy
BIOL/MARI 4065.03 Sustainability and Global Change
MARI/MARI 4661.03 Biological Oceanography (BIOL/MARI 4661.03)

Note: As usual, students will be required to meet the stated pre-requisites of all courses counted toward the certificate.

Certificate Requirements:

1. Required EIA course: BIOL 4001.03 or ENVS 4001.03 or ENVY 4772.03 (0.5 credits) to be taken in the fourth year.
2. Introductory course in Science or IDS (Table 1) (minimum of 0.5 credits)
3. 3rd Level Environmental courses with largely theoretical content from Table 2 (minimum of 1.5 credits)
4. 3rd Level Methods courses that provide field, laboratory, statistical, modelling and related experience from Table 3 (minimum of 0.5 credits)
5. 3rd and 4th Level Supplementary courses in Major and Related Disciplines (minimum of 1.5 credits)
6. 3rd Level Environmental courses with largely theoretical content from Table 2 (minimum of 1.5 credits)

Students are also encouraged to further develop their study design and analysis skills by taking additional courses such as BIOL 4001.03 (Design of Biological Experiments) or BIOL 4062.03 (Analysis of Biological data).

Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.

Experiments) or BIOL 4061.03 (Analysis of Biological data).

Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.

Experiments) or BIOL 4061.03 (Analysis of Biological data).

Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.

Experiments) or BIOL 4061.03 (Analysis of Biological data).

Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.

Experiments) or BIOL 4061.03 (Analysis of Biological data).

Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.

Experiments) or BIOL 4061.03 (Analysis of Biological data).

Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.

Experiments) or BIOL 4061.03 (Analysis of Biological data).

Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.

Experiments) or BIOL 4061.03 (Analysis of Biological data).

Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.

Experiments) or BIOL 4061.03 (Analysis of Biological data).

Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.

Experiments) or BIOL 4061.03 (Analysis of Biological data).

Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.
Faculty of Science offers a Certificate in Geographic Information Science. The certificate is intended to reflect that the student has completed courses of study in geographic information systems and geomatics that are appropriate for further study or employment related to geographic information science.

Certificate in Geographic Information Science

Students completing an undergraduate program in a discipline other than those listed above will need to complete the project through a directed readings or honors thesis component. Contact the Certificate Coordinator for program requirements. Completion of each Certificate would be noted on the student’s transcript.

The purpose of a “Certificate in Geographic Information Science” is to show that the graduate has training in geographic information science; in addition to their academic program requirements. Students should enrol in the “Certificate in Geographic Information Science” by contacting the Certificate Coordinator. Contact information for the Coordinator is available on the Faculty of Science website. Students can enrol when in their second, third or fourth year of their undergraduate program. Early enrolment is advised.

Certificate Requirements:
1. Students must complete the following courses, with a minimum grade of B- in each:
   - SUST 4900.06: Honours Thesis
   - ERTH 4000.06: Research Project
   - GEOG 4000.03: GIS Applications to Environmental and Geographical Science

2. In addition, students must complete at least two of the following courses, with a minimum grade of B- in each:
   - GEOG 2000.03: Cartography
   - BIO/BKLM 3000.03: Environmental Decision Making
   - ENVS 3400.03: Environment and Human Health
   - SUET 5000.03: Environmental Decision Making

3. In addition, students must complete a research project with an emphasis in geomatics or geographic information science (as pre-approved by the Certificate Coordinator) via one of the following sets of courses, with a minimum grade of B-:
   - BIO/BKLM 4000.03 or 4901.03/4902.03: Honours Thesis
   - BIO/BKLM 4800.03 or 4907.03: Special Topics
   - ENVS 3000.03: Directed Readings
   - GEOG 4001.06: Research Project
   - ERTH 4200.06: Honours Thesis
   - ERTH 4510.03 or 4511.03: Directed Studies
   - SUST 4000.03: Independent Study
   - SUST 4900.06: Honours Thesis

Students completing an undergraduate program in a discipline other than those listed above will need to complete the project through a directed readings or honors thesis course listed within their home department. The project must be approved by the Certificate Coordinator.

Research Project Guidelines for the Certificate in Geographic Information Science

In the research project in GIS students learn how to design, manage and complete a research project that emphasizes the use of a geographic information system (GIS). Projects can be completed individually or in groups and will proceed with the identification of a suitable research problem. Students will work to solve the problem through acquiring, organizing, analyzing and presenting data using GIS.

Projects must include a substantive analytical component where GIS is central to the methods employed.

The focus of project evaluation is on the methodological and organizational dimensions and the appropriate application of appropriate GIS techniques, and proper reporting of the results. The GIS component is accomplished through independent work. It is assumed that students already know the GIS concepts and functions required or are capable of learning them, and are proficient in the use of at least one GIS package.

Supervision and evaluation of research projects should include, at minimum, input from a professor or GIS technician competent in geographic information science, methods and technologies. Evaluation of the research project should ideally include three written components: a proposal, a final report and a presentation. In group evaluation the supervisor may adjust final grades based on performance and contribution to the group.

II. Course Selection Guidelines

The Faculty of Science offers a Certificate in Geographic Information Science. The Certificate in Geographic Information Science is available to students in programs other than those where GIS is a course requirement. Students completing an undergraduate program in a discipline other than those listed above will need to complete the project through a directed readings or honors thesis component. Contact the Certificate Coordinator for program requirements. Completion of each Certificate would be noted on the student’s transcript.

The purpose of a “Certificate in Geographic Information Science” is to show that the graduate has training in geographic information science; in addition to their academic program requirements.

Students should enrol in the “Certificate in Geographic Information Science” by contacting the Certificate Coordinator. Contact information for the Coordinator is available on the Faculty of Science website. Students can enrol when in their second, third or fourth year of their undergraduate program. Early enrolment is advised.

Certificate Requirements:
1. Students must complete the following courses, with a minimum grade of B- in each:
   - SUST 4900.06: Honours Thesis
   - ERTH 4000.06: Research Project
   - ERTH/GEOG 4520.03: GIS Applications to Environmental and Geographical Science

2. In addition, students must complete at least two of the following courses, with a minimum grade of B- in each:
   - GEOG 2000.03: Cartography
   - BIO/BKLM 3000.03: Environmental Decision Making
   - ENVS 3400.03: Environment and Human Health
   - SUET 5000.03: Environmental Decision Making

3. In addition, students must complete a research project with an emphasis in geomatics or geographic information science (as pre-approved by the Certificate Coordinator) via one of the following sets of courses, with a minimum grade of B-:
   - BIO/BKLM 4000.03 or 4901.03/4902.03: Honours Thesis
   - BIO/BKLM 4800.03 or 4907.03: Special Topics
   - ENVS 3000.03: Directed Readings
   - GEOG 4001.06: Research Project
   - ERTH 4200.06: Honours Thesis
   - ERTH 4510.03 or 4511.03: Directed Studies
   - SUST 4000.03: Independent Study
   - SUST 4900.06: Honours Thesis

Students completing an undergraduate program in a discipline other than those listed above will need to complete the project through a directed readings or honors thesis course listed within their home department. The project must be approved by the Certificate Coordinator.

Research Project Guidelines for the Certificate in Geographic Information Science

In the research project in GIS students learn how to design, manage and complete a research project that emphasizes the use of a geographic information system (GIS). Projects can be completed individually or in groups and will proceed with the identification of a suitable research problem. Students will work to solve the problem through acquiring, organizing, analyzing and presenting data using GIS.

Projects must include a substantive analytical component where GIS is central to the methods employed.

The focus of project evaluation is on the methodological and organizational dimensions and the appropriate application of appropriate GIS techniques, and proper reporting of the results. The GIS component is accomplished through independent work. It is assumed that students already know the GIS concepts and functions required or are capable of learning them, and are proficient in the use of at least one GIS package.

Supervision and evaluation of research projects should include, at minimum, input from a professor or GIS technician competent in geographic information science, methods and technologies. Evaluation of the research project should ideally include three written components: a proposal, a final report and a presentation. In group evaluation the supervisor may adjust final grades based on performance and contribution to the group.
B. Organismal Biology

Organismal biology includes areas such as development, physiology and anatomy, as well as the study of particular taxonomic groups. Students interested in organismal biology are encouraged to select courses from the following:

1. Cell Biology (BIOC): All BIOC courses 1000 level or higher
2. Anatomy (ANAT): All ANAT courses 2000 level or higher
3. Physiology (PHYL): All PHYL courses 2000 level or higher
4. Microbiology (MCRA): All MCRA courses 2000, 3000, 4000
5. Genetics (GENE): 3000, 3001, 4000, 4003, 4004
6. Environmental Science (ENVS): 3217, 3225, 3226, 3615, 3623, 3624, 3632, 3664, 4374, 4375, 4376, 4377
7. Biochemistry (BIOC): All BIOC courses 2000 level or higher

C. Cell/Molecular Biology

Cell/molecular biology includes areas such as cell biology, molecular biology, genetics, biochemistry, microbiology, development, evolution and histology. Students interested in cell/molecular biology are encouraged to consider the courses listed below. Note that Biology credit can be obtained for Microbiology, Biochemistry and Physiology courses above the 2000 level.

1. Microbiology (MCRA): All MCRA courses 2000 level or higher
2. Cell Biology (BIOC): All BIOC courses 1000 level or higher
3. Physiology (PHYL): All PHYL courses 2000 level or higher

III. Enrolment Limitations

Students intending to enrol in programs in Biology and Marine Biology should note that there are limitations on the number of students that can be accepted into 2000 and higher level courses in any given year. Passing the introductory Biology courses with the required grade of C- does not guarantee a place in any of these courses. Lecture courses are limited by room size. Additional size restrictions are imposed on laboratory courses because of equipment limitations and the much closer supervision required. Size limitations on 2000 and 3000 level laboratory courses are specified under the timetable listings for those courses.

Students are advised to register as early as possible during the registration period to secure their space within their desired courses.

Please note also that being registered for a course does not guarantee late admission. Students not appearing on the first day of course may be deleted from course lists. Students are advised that being signed into a course is no guarantee of late admission.

Biology courses are grouped into four general categories:

1. 1000 Level Courses

   (BIOI 1010.03 or 1020.05 and BIOI 1011.05 or 1021.05). These courses are the introductory university-level courses in biology.

2. 2000 Level Courses

   All Biology majors (15, 20 credit and Honours) are required to take a core program at the 2000 level. Students should normally complete these core courses in their second year. The core program is designed to provide a basis for more advanced studies in Biology as well as to ensure that all majors are exposed to the general discipline or subject areas of biology. A variety of skills including writing, oral presentation, computer literacy, library use, and problem solving are integrated into the curriculum of these core courses along with ‘hands-on’ activities in the laboratory or field. The second-year core program covers five discipline areas:

   1. Cell Biology - BIOI 2020.03
   2. Diversity of Organisms (animals, plants and microorganisms)
      • BIOI 2003.03
      • BIOI 2004.03
   3. Ecology - BIOI 2006.03
   4. Evolution - BIOI 2040.03
   5. Genetics and Molecular Biology - BIOI 2100.03

   Students interested in biochemistry are advised to take the second-year biochemistry course offered by the Biochemistry and Molecular Biology department. This course is not part of our core program but is a prerequisite for entry into some higher level courses.

   Students majoring in subjects other than Biology can design their own programs and will not have to conform to these 2000 level core requirements. All students should ensure they have the necessary prerequisite courses required for entry into 3000 level courses.

3. 3000 Level Courses

   These courses are mainly for second- and third-year students. No student whose minor is in Biology will be allowed to register in any 3000 or 4000 level course without having completed, or being registered in 2000 level courses in biology totalling at least two full credits.

4. 4000 Level Courses

   These courses are primarily for honours or major students. They are open to others with the permission of the instructor. Where biology courses are identified as being given in another department (eg. Anatomy), that department should be consulted for details.

5. Other Courses

   The following courses, given by other departments may be taken as a Biology course toward BA, BSc, and BIE (Honours) Biology degrees.

   These courses are available as listed in a Biology course.

   Agriculture (AGRI): 1000
   Anatomy (ANAT): All ANAT courses 2000 level or higher
   Aquaculture (AQUA): 2000, 3000
   Biochemistry (BIOC): All BIOC courses 2000 level or higher
   Environmental Science (ENVS): 4092, 4093, 4097
   Environmental Science (ENVS): 2127, 2128, 3615, 3623, 3624, 3632, 3664, 4000
   Genetics (GENE): 3000, 3001, 4000, 4003, 4004
   History (HIST): 2074, 2091, 3073, 3074
   History of Science and Technology (HIST): 1200, 2200, 3212, 3331
   Microbiology (MICR): All MICR courses 2000 level or higher
   Microbiology (MICR): 2000, 3000, 4000
   Marine Biology (MAR): All MARX courses
   Neuroscience (NEUR): 3123, 3440
   Nutrition (NUTR): 4374, 4375, 4376, 4377
   Oceanography (OCEA): 3063
   Physiology (PHYL): All PHYL courses 2000 level or higher
NOTE: Students planning to take further courses in Biology or Marine Biology are recommended. Learning activities include readings, eukaryotic life, ecology, and plant and animal biology. High school mathematics, chemistry, and biology is offered in the fall, winter and summer terms. Topics include diversity of non–animal life forms. Reviews the origins of the main lineages of living things – Archaea, Eukarya, and Eukarya, as well as the main groups of eukaryotes.

NOTE: Students who took a Biology 1000 level prerequisite prior to September 2013 and did not get a grade of C+ or higher should contact an advisor in the Biology Department preferably before registration begins.

BIOL 2040.03: Diversity of Life II.
Introduces the main domains of plant, fungal and microbial life, based on modern phylogenetic taxonomy. Examines the diversity, structure, physiology and ecology of non–animal life forms. Reviews the origins of the main lineages of living things – Archaea, Eukarya, and Eukarya as well as the main groups of eukaryotes.

NOTE: Students who took a Biology 1000 level prerequisite prior to September 2013 and did not get a grade of C+ or higher should contact an advisor in the Biology Department preferably before registration begins.

FORMAT: Lecture 3 hours, Lab 3 hours
PREREQUISITE: BIOL 1031.03 or BIOA 1002.03 and BIOL 1011.03 or BIOL 1021.03 or BIOL 1000.03 or DISP (SCIE 15XX) or STAT 1000.03
EXCLUSION: BIOL 1000.03, BIOL 1001.03, BIOL 1020.03, BIOL 1021.03 or DISP (SCIE 15XX)

BIOL 2050.03: Cell Biology.
An introduction to the eukaryotic cell. Major cell components and activities are described at intracellular and molecular levels with emphasis on mammalian systems. The concept of the cell as an integrated, functional unit is developed.

NOTE: Students who took a Biology 1000 level prerequisite prior to September 2013 and did not get a grade of C+ or higher should contact an advisor in the Biology Department preferably before registration begins.

FORMAT: Lecture 3 hours, Lab 3 hours
PREREQUISITE: A grade of C+ or higher in BIOL 1000.03 or BIOL 1010.03 or BIOL 1020.03 or BIOL 1021.03 or BIOL 1000.03, DISP (SCIE 15XX) or equivalent
RECOMMENDED: CHEM 1011.03 and CHEM 1012.03
EXCLUSION: BIOL 2004.03

BIOL 2003.03: Diversity of Life I.
Surveys the diversity of forms and functions in invertebrate and vertebrate animals. Emphasis is placed on the invertebrate phyla and fish of marine environments, and on arthropods, birds and mammals on land. The course takes a phylogenetic approach, exploring the evolutionary relationships, and introduces examples of the different life forms. Students who took a Biology 1000 level prerequisite prior to September 2013 and did not get a grade of C+ or higher should contact an advisor in the Biology Department preferably before registration begins.

FORMAT: Lecture 3 hours, Lab 3 hours
PREREQUISITE: None
EXCLUSION: BIOL 1000.03, BIOL 1001.03, DISP (SCIE 15XX)

BIOL 1030.03: Organismal Biology & Ecology.
Introduces the main domains of plant, fungal and microbial life, based on modern phylogenetic taxonomy. Examines the diversity, structure, physiology and ecology of non–animal life forms. Reviews the origins of the main lineages of living things – Archaea, Eukarya, and Eukarya, as well as the main groups of eukaryotes.

NOTE: Students who took a Biology 1000 level prerequisite prior to September 2013 and did not get a grade of C+ or higher should contact an advisor in the Biology Department preferably before registration begins.

FORMAT: Lecture 3 hours, Lab 3 hours
PREREQUISITE: A grade of C+ or higher in BIOL 1000.03 or BIOL 1010.03 or BIOL 1020.03 or BIOL 1021.03 or BIOL 1000.03, DISP (SCIE 15XX) or equivalent
RECOMMENDED: CHEM 1011.03 and CHEM 1012.03
EXCLUSION: BIOL 2004.03

BIOL 2020.03: Cell Biology.
An introduction to the eukaryotic cell. Major cell components and activities are described at intracellular and molecular levels with emphasis on mammalian systems. The concept of the cell as an integrated, functional unit is developed.

NOTE: Students who took a Biology 1000 level prerequisite prior to September 2013 and did not get a grade of C+ or higher should contact an advisor in the Biology Department preferably before registration begins.

FORMAT: Lecture 3 hours, Lab 3 hours
PREREQUISITE: A grade of C+ or higher in BIOL 1000.03 or BIOL 1010.03 or BIOL 1020.03 or BIOL 1021.03 or BIOL 1000.03, DISP (SCIE 15XX) or equivalent
RECOMMENDED: CHEM 1011.03 and CHEM 1012.03
EXCLUSION: BIOL 2004.03

BIOL 1021.03: Introductory Biology II: Organismal Biology & Ecology.
Biological 2020.03 is the online distance education equivalent of BIOL 1011.03 and is offered in the fall, winter and summer terms. Topics include diversity of eukaryotic life, ecology, and plant and animal biology. High school mathematics, chemistry, and biology are recommended. Learning activities include readings, quizzes, interactive multimedia, online labs and home labs.

NOTE: Students planning to take further courses in Biology or Marine Biology should read the Program Requirements for these degrees.
BIOL 2030.03: Genetics and Molecular Biology. The power and prominence of modern genetics have grown from a blend of classical and molecular approaches; both approaches are emphasized. Topics include: Mendelian population and quantitative genetics, chromosomes, structure and variation, structure and function of nucleic acids, DNA replication, transcription and translation, gene expression, gene mutations, and genetic engineering.

NOTE: Students who took a Biology 1000 level prerequisite prior to September 2013 and did not get a grade of C+ or higher should contact an advisor in the Biology Department preferably before registration begins.

FORMAT: Lecture 3 hours, lab/tutorial 3 hours
PREREQUISITE: A grade of C+ or higher in BIOL 1010 or BIOL 1020.03 or 1031.03, or BIOL 1021.03 or DSP (SCI 15XX)
RECOMMENDED: CHEM 1011.03 and CHEM 1012.03
EXCLUSION: GENE 2000.03

BIOL 2040.03: Evolution. A thorough overview of the process of evolution. Generic variation and changes in generic composition of populations, the relationship between generic and phenotypic change. Adaptation at various levels of organization (DNA to species), speciation, phylogeny, and macro-evolutionary patterns. Introduces the full breadth of concepts, preparation to more advanced courses.

NOTE: Students who took a Biology 1000 level prerequisite prior to September 2013 and did not get a grade of C+ or higher should contact an advisor in the Biology Department preferably before registration begins.

FORMAT: Lecture, 3 hours, lab/tutorial 2 hours
PREREQUISITE: A grade of C+ or higher in BIOL 1010.03 or BIOL 1020.03 or BIOL 1031.03 or BIOL 1021.03 or DSP (SCI 15XX) or equivalent
EXCLUSION: BIOL 3041.03

BIOL 2600.03: Introductory Ecology. Ecology examines interactions of plants and animals, including humans, with each other and with their non-living environment. Topics include population growth, competition, predation, food webs, metapopulation dynamics, biodiversity, and ecosystem function. The course has a quantitative approach providing a foundation for further work in ecology, marine biology and environmental science.

NOTE: Students who took a Biology 1000 level prerequisite prior to September 2013 and did not get a grade of C+ or higher should contact an advisor in the Biology Department preferably before registration begins.

FORMAT: Lecture 3 hours, lab/tutorial 2 hours
PREREQUISITE: A grade of C+ or higher in one of: BIOL 1011.03, BIOL 1021.03, BIOL 1031.03, BIOL 1010.03, BIOL 1020.03, SCI 15XX, ENVS 1000.06 and (MATH/STAT 1060.03 or MATH/STAT 2080.03) or equivalent

BIOL 2601.03: The Flora of Nova Scotia. Introduction to the biodiversity of flowering plants (Angiosperms) found in Nova Scotia. A wide range of plant communities are visited on several day-long field trips. A focus on plant identification is supplemented with lessons in plant ecology, floral biology, pollination mechanisms, natural history, and human uses (e.g., edible, poisonous, medicinal).

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see Biology Department preferably before registration begins.

FORMAT: Lecture/lab/field
PREREQUISITE: A grade of C+ or higher in BIOL 1011.03 (or BIOL 1021.03), BIOL 1031.03 or BIOL 1020.03, or BIOL 1010.03 (or BIOL 1020.03)
EXCLUSION: BIOL 2061.03

BIOL 2605.03: Introduction to Marine Life of Nova Scotia. Introduction to the variety of marine life found in Nova Scotia. The diversity and zonation of invertebrates and macroalgae is explored on field trips to different shore environments, including a salt marsh, rocky shore and sandy beach. Lectures and laboratory-based investigations on live marine organisms complement the field trips.

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see Biology Department preferably before registration begins.

FORMAT: Lecture/lab/field
PREREQUISITE: A grade of C+ or higher in BIOL 1011.03 (or BIOL 1021.03), BIOL 1031.03 or BIOL 1020.03, or BIOL 1010.03 (or BIOL 1020.03)
EXCLUSION: BIOL 2061.03

BIOL 3003.03: Introduction to Field Oceanography. See course description for OCEA 3003.03 in the Oceanography section of the calendar.

BIOL 3020.03: Advanced Cell Biology. The eukaryotic cell is a unique array of interconnected organisms. Topics include the processing of proteins during trafficking, how the cell interacts with its environment and how it integrates information, with an emphasis on signalling pathways. Lectures are supplemented with assigned readings of original research articles for discussion.

FORMAT: Lecture 1.5 hours/discussion 1.5 hours
PREREQUISITE: BIOL 2020.03 or BIOL 2040.03 with a minimum grade of B or instructor's consent

BIOL 3024.03: Microscopy. See course description for MIER 3024.03 in the Microbiology and Immunology section of the calendar.

BIOL 3036.03: Transgenic Organisms. Transgenics are created by inserting foreign genes into organisms by genetic engineering. This course will include: Recombinant DNA technology, the history of transgenics, methods of production/salutation (plant and animal) and human gene therapy. Problems, ethics and controversy (e.g., Frankenfood) associated with this technology will be discussed.

NOTE: Students who took a Biology 1000 level prerequisite prior to September 2013 and did not get a grade of B- or higher should contact an advisor in the Biology Department preferably before registration begins.

FORMAT: Lecture 3 hours
PREREQUISITE: A grade of C+ or higher in BIOL 1010.03 (or BIOL 1020.03) or BIOL 1021.03, and BIOL 1011.03 (or BIOL 1021.03) or DSP (SCI 15XX)

BIOL 3042.03: Molecular Ecology. We survey techniques of molecular genetic analysis and consider how they can be used to identify species, populations, sexes, individuals and family relationships, and study population attributes such as historical dispersal, contemporary connectivity, mating behaviour and effective population size. Evaluation is based on assignments, a test and a final exam.

PREREQUISITE: A grade of B- or better in each of BIOL 2030.03 (or GENE 2000.03), BIOL 2040.03, and BIOL 2060.03.
CROSS-LISTING: MARE 3042.03
EXCLUSION: BIOL 4042.03

BIOL 3044.03: Ecological Genetics. An advanced examination of genetic variation in ecologically important (especially quantitative) traits. Topics will include determining whether a trait is inherited, natural selection in the wild, specialist vs. generalist strategies, how variation is maintained in the face of selection, trade-offs between competing selective pressures and selection for diversification.

FORMAT: Lecture 3 hours
PREREQUISITE: BIOL 2400.03 or BIOL 3401.03
EXCLUSION: BIOL 4044.03

BIOL 3046.03: Molecular Evolution. This course examines the process of evolutionary change at the molecular level. It begins with the sources of mutation, and moves on to dynamics of population variation. The course culminates with a macro-evolutionary perspective on topics such as adaptive evolution and genetic co-option. This course is complementary to BIOL 4010 (Genetics).

FORMAT: Lecture 3 hours
PREREQUISITE: BIOL 2030.03 or GENE 2000.03, BIOL 2040.03

BIOL 3050.03: Developmental Biology. Lectures describe development as a sequence of processes and events, in which 'simple' structures such as fertilized eggs are progressively transformed into complex organisms. These events are governed by developmental 'rules' which specify the temporal and spatial patterning of development.

PREREQUISITE: BIOL 2020.03 or BIOL 2030.03 or GENE 2000.03
Biol 3060.03: Environmental Ecology.
The ecological effects of pollution, disturbance, and other stresses, both anthropogenic and natural. Major subject areas are air pollutants, toxic metals, acidification, nutrient runoff, oil spills, pesticides, forestry, warfare, urban ecology, risks to biodiversity, and resource degradation. The overarching context of the course is the concept of sustainability and laboratory work focuses on these themes. 

**Format:** Lecture 3 hours, tutorial 3 hours

**Prerequisite:** BIOL 2003.03 or BIOL 3001.03 (or see instructor)
**Cross-listing:** BIOL 3060.03

Biol 3061.03: Communities and Ecosystems.
Part 1 includes community history and theory, complex systems, community structure descriptors, interactions, stability, and food webs. Part 2 discusses the ecosystem approach, environmental management, ecosystem health and integrity, environmental indicators, ecologicalfootprint, and resilience theory.

**Format:** Lecture 3 hours and BIOL 3061.03

**Prerequisite:** BIOL 2060.03 or BIOL 3001.03, or INTD 2001.03 or INTD 2002.03

Biol 3062.03: Behavioral Ecology.
This course examines animal behavior from an evolutionary perspective. Using the theory of natural selection as a basis, we will examine foraging, grouping patterns, territorial behavior, parenting, mating behavior, social organization, aggression and cooperation. There will be tutorials and essay assignments.

**Format:** Lecture 3 hours

**Prerequisite:** BIOL 2060.03 or (see BIOL 3001.03)

Biol 3063.03: Resource Ecology.
The course considers the ecology, utilization, and management of natural resources in fisheries, wildlife and forest management, agriculture and aquaculture. Topics include population dynamics, community interactions, and ecosystem-support of resources as well as the history of resource utilization, practices of controlling production, pests, and predators, and sustainable management strategies.

**Format:** Lecture 3 hours, tutorial 2 hours

**Prerequisite:** BIOL 2003.03 or BBA 3001.03, MATH 1000.03 or MATH 1215.03 or DSSP, STAT 1000.03 or DSSP (SCIE 15XX)

Biol 3065.03: Conservation Biology.
The course offers an introduction to conservation biology: the science of understanding and conserving biodiversity on Earth. Students learn how biodiversity change is assessed and what tools are used to prevent the extinction of species and the disruption of ecosystems. Tutorials involve oral presentations as well as a written essay.

**Format:** Lecture 3 hours, tutorial 2 hours

**Prerequisite:** BIOL 2060.03 or BIOL 3001.03

Biol 3067.03: Ecology and Evolution of Fishes.
This course will examine selected topics on the ecology and evolution of marine and freshwater fishes. Topics shall include systematics, functional morphology, evolutionary ecology, behavior, life history strategies, population biology, fisheries science, and conservation biology.

**Format:** Lecture 3 hours, lab 2.5 hours

**Prerequisite:** BIOL 2060.03 or BIOL 2061.03 or BIOL 3001.03

**Cross-listing:** BIOL 3067.03, MARI 3067.03

An examination of selected topics in population ecology, including the effects of species interactions on population fluctuations, cycles and extinction. Case studies (hare cycles, forest insect outbreaks and elephant dynamics) will be studied in light of current ecological theory. Written assignments and exams will contribute to evaluation.

**Format:** Lecture/tutorial 3 hours

**Prerequisite:** BIOL 2003.03 or BIOL 3001.03 minimum grade of B, STAT 1040.03 and MATH 1000.03 or MATH 1215.03 or DSSP.

Biol 3078.03: Principles of Animal Physiology Part I.
Lectures on the mechanisms which coordinate the activities of cells within multicellular organisms and permit such organisms to remain in homeostatic balance. The emphasis is on the mechanisms most widely distributed throughout the animal kingdom. The laboratories are designed to illustrate these principles in a variety of organisms.

**Note:** Students must complete 3078.03 before 3079.03

**Format:** Lecture 3 hours, lab 3 hours

**Prerequisite:** BIOL 2003.03, BIOL 2020.03 or (see BIOL 3001.03)

Biol 3079.03: Principles of Animal Physiology Part II.
This course is a continuation of the mechanisms which coordinate the activities of cells within multicellular organisms which began in BIOL 3078.03. This term emphasizes the circulatory, cardiovascular and respiratory systems. The laboratories reflect the approaches taken to study these systems in a variety of organisms.

**Format:** Lecture 3 hours, Lab 3 hours

**Prerequisite:** BIOL 3078.03 or (see BIOL 3074.03

**Exclusion:** MARI 3065.03, BIOL 3067.03

Biol 3101.03: Microbial Ecology.
Lectures on the ecology of bacteria, viruses and protists. Community structure, food web nutrient cycling, biogeochemical cycles, competition, succession and symbiosis are discussed with examples from marine, fresh water and soil habitats. There is an emphasis on marine organisms.

**Format:** Lecture 3 hours

**Prerequisite:** BIOL 2004.03 or (MCI 2100.03), and BIOL 2060.03 or (see BIOL 3001.03)

**Cross-listing:** MARI 3101.03

Biol 3102.03: Microbial Eukaryotes: Biodiversity and Evolution.
Microbial eukaryotes are of tremendous ecological, evolutionary and medical/veterinary importance. This course provides a comprehensive understanding of the biodiversity and evolution of both algal and protozoan eukaryotes, and examines important impacts of their organismal biology, including cell and genome organization, life histories, trophic strategies, locomotion and symbiosis.

**Format:** Lecture/4 hours (alternate weeks: 2 hour lab or lecture)

**Prerequisite:** BIOL 2060.03 or (see BIOL 2001.03) and BIOL 2060.03 or (MCI 2100.03)

Biol 3221.03: Diversity of Algae.
This is a taxonomic introduction to the major algal groups (macrophytic and microscopic) with an emphasis on the marine seaweeds. Basic taxonomic differences are covered, along with an introduction to macrophytic ecology, human uses and symbioses. Laboratory sessions focus on morphology and reproduction.

**Prerequisite:** BIOL 2004.03 or equivalent

**Cross-listing:** MARI 3221.03

**Exclusion:** BIOL 3212.03, MARI 3212.03

Biol 3226.03: Economic Botany: Plants & Civilization.
See course description for EVNS 3226.03 in the Environmental Studies section of the calendar.

Biol 3301.03: Invertebrate Biology.
A survey of the diversity, ecology, and evolutionary history of the major invertebrate groups. Lectures will emphasize phylogenetics and diversity of body plans, labs will emphasize identification and anatomy through dissections and observations.

**Format:** Lecture 2 hours, lab 3 hours

**Prerequisite:** BIOL 2003.03

**Cross-listing:** MARI 3301.03

Biol 3322.03: Parasitology.
The course emphasizes the parasite-host relationships, evolution of the parasites and adaptations to the host, modifications of physiology, structure and life cycles for a parasitic existence. Since the most extensive research pertains to parasites of man, the emphasis is on human parasites.

**Format:** Lecture 2 hours, lab 3 hours

**Prerequisite:** A grade of B- or higher in BIOL 1010 or BIOL 3072.03, and BIOL 3011.03 or BIOL 1021.03 or BIOL 1065.03, or SCIE 1515.18 or SCIE 1515.36 or SCIE 1520.30 or SCIE 1540.27

Biol 3326.03: Vertebrate Design: Evolution and Function.
Vertebrate Design explores 600 million years of vertebrate evolution, with particular attention to origins of major groups and the anatomical and functional innovations associated with their rise and diversification. Functional morphology of living systems, flying and terrestrial locomotion is also covered, along with the effect of body size on function.

**Format:** Lecture 3 hours

**Prerequisite:** BIOL 2003.03 and BIOL 2040.03
Biol 3327.03: Entomology. The course is an introduction to the study of insects. Topics include insect classification, evolutionary diversity, biology, ecology, behavior, and various applied aspects. Through this survey of the insects, students will gain an appreciation of insect biodiversity as well as their economic and ecological importance. 

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

Prerequisite: BIOL 2003.03
Exclusion: BIOL 3300.03

Biol 3328.03: Medical Entomology. Medical Entomology covers direct injuries caused by arthropods such as phlebotomus, araneous, lice, ticks, venomous and myiasis, arthropod transmission of vertebrate parasites, epidemiology of arthropod-borne diseases. Students study transmission of diseases, methods of surveillance of diseases, management by vector control and other methods of arthropod-borne diseases.

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

Prerequisite: BIOL 3327.03 or BIOL 3322.03 or BIOL 3000.03, or permission of instructor

Biol 3329.03: Applied Entomology. Insects not only comprise more than half of the world’s biodiversity, but influence human health and economic well-being in many ways. In this course students are introduced to insect pest management, agricultural, forest and medical entomology, forensic entomology, and insects as food science, beneficial and harmful insects.

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

Prerequisite: BIOL 3327.03 or BIOL 3322.03 or BIOL 3000.03 or permission of instructor

Biol 3421.03: Comparative Vertebrate Histology. See course description for ANAT 3421.03 in the Anatomy and Neurobiology section of this calendar.

Biol 3430.03: Introduction to Human Histology. See course description for ANAT 2160.03 in the Anatomy and Neurobiology section of this calendar.

Biol 3503X/Y.06: Introduction to the History of Science. See course description for HIST 2200X/Y.06 in the History of Science & Technology section of the calendar.

Biol 3580.03: Philosophy of Biology. See course description for PSBL 3420.01 in the Philosophy section of this calendar.

Biol 3600.03: Aquaculture. Through lectures, laboratories and field trips (additional fees apply), this course offers an introductory overview of aquaculture, the culturing of aquatic plants and animals. The following topics are covered with both a Maritimes and global perspective: overview, physico-chemistry of water, engineering, culture techniques, health, nutrition, genetics, environmental and socio-economic considerations.

FORMAT: Lectures, labs, field trips
Prerequisite: BIOL 3327.03 or BIOL 3322.03 or BIOL 3000.03
Exclusion: BIOL 3601.03

Biol 3601.03: Nature Conservation. This interdisciplinary course explores relationships between humans and the natural world, including damage caused to species and ecosystems. The course looks at environmental ethics and world views, environmental philosophy, sustainability, the cultural expression of natural values (literature, music, art) and conservation science and actions, including the establishment of protected areas.

FORMAT: Lecture 3 hours, tutorial 1 hour
BIOL 3665.03: Food Web Assembly and Modelling. In “Food Webs” the student will examine the structure and functioning of ecological communities through a lens of “who eats whom” predator-prey feeding interactions through field studies, experiments, and computer simulations. 

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

BIOL 3666.03: Species Invasions. Students will examine species invasions, the establishment of non-native species in new communities, using an interdisciplinary framework incorporating impacts, theory, and management of invasive species.

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

BIOL 3680.03: Scientific Diving Methods for Marine Ecology. This course introduces students that are certified divers to the practice of underwater research using SCUBA. It combines lectures with supervised dives in various marine habitats to demonstrate the application of standard sampling and experimental procedures in marine ecology, with an emphasis on logistical considerations and diving safety.

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

BIOL 3761.03: Marine Ecology. Building upon an understanding of basic ecological and evolutionary principles, and a familiarity with the major marine invertebrate and algal taxa, this course examines patterns and processes at the organismal, population and community levels that determine the diversity and distribution of life in the sea.

FORM: Field Intensive, Lecture, Lab and Lecture

BIOL 3762.03: Terrestrial Ecology. This course provides a conceptual framework for understanding the function of terrestrial ecosystems. One week at a field station in Nova Scotia provides a hands-on approach to understanding and using spatial information, this course introduces students to Geographic Information Systems (GIS) as a tool to answer ecological questions. Together, students conduct a major field project, collecting data, creating maps using GIS, and interpreting spatial patterns, to address and apply problem in ecology.

NOTE: Offered in the summer through SEASIDE, an auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

BIOL 3646.03: Intertidal Ecology and Diversity. Hands-on, intensive introduction to ecological research on rocky shores, tidal flats, and sandy beaches. Relevant ecological concepts, sampling techniques for flora and fauna, and statistical skills are learned. Field sampling on a regular basis that permits a follow up of lab work (e.g., identification of seaweed, invertebrates), statistical analysis, and report preparation.

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

BIOL 3766.03: Food Web Assembly and Modelling. In “Food Webs” the student will examine the structure and functioning of ecological communities through a lens of “who eats whom” predator-prey feeding interactions through field studies, experiments, and computer simulations. 

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

BIOL 3665.03: Food Web Assembly and Modelling. In “Food Webs” the student will examine the structure and functioning of ecological communities through a lens of “who eats whom” predator-prey feeding interactions through field studies, experiments, and computer simulations. 

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

BIOL 3666.03: Species Invasions. Students will examine species invasions, the establishment of non-native species in new communities, using an interdisciplinary framework incorporating impacts, theory, and management of invasive species.

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

BIOL 3680.03: Scientific Diving Methods for Marine Ecology. This course introduces students that are certified divers to the practice of underwater research using SCUBA. It combines lectures with supervised dives in various marine habitats to demonstrate the application of standard sampling and experimental procedures in marine ecology, with an emphasis on logistical considerations and diving safety.

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

BIOL 3761.03: Marine Ecology. Building upon an understanding of basic ecological and evolutionary principles, and a familiarity with the major marine invertebrate and algal taxa, this course examines patterns and processes at the organismal, population and community levels that determine the diversity and distribution of life in the sea.

FORM: Field Intensive, Lecture, Lab and Lecture

BIOL 3762.03: Terrestrial Ecology. This course provides a conceptual framework for understanding the function of terrestrial ecosystems. One week at a field station in Nova Scotia provides a hands-on approach to understanding and using spatial information, this course introduces students to Geographic Information Systems (GIS) as a tool to answer ecological questions. Together, students conduct a major field project, collecting data, creating maps using GIS, and interpreting spatial patterns, to address and apply problem in ecology.

NOTE: Offered in the summer through SEASIDE, an auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

BIOL 3646.03: Intertidal Ecology and Diversity. Hands-on, intensive introduction to ecological research on rocky shores, tidal flats, and sandy beaches. Relevant ecological concepts, sampling techniques for flora and fauna, and statistical skills are learned. Field sampling on a regular basis that permits a follow up of lab work (e.g., identification of seaweed, invertebrates), statistical analysis, and report preparation.

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.

BIOL 3766.03: Food Web Assembly and Modelling. In “Food Webs” the student will examine the structure and functioning of ecological communities through a lens of “who eats whom” predator-prey feeding interactions through field studies, experiments, and computer simulations. 

NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca.
term or complete the 96 hours in a more concentrated period during the summer. Grading is pass/fail.
PREREQUISITE: Students must be registered in a Biology or Marine Biology program, have completed a minimum of three full credits in Biology above the 1000 level and have a minimum cumulative GPA of 2.4 or permission of co-
ordinator.
CROSS-LISTING: MAR 3800.03
EXCLUSION: Scheduled courses at a learning institution, study that would qualify for a Special Topics course, an Honours project, co-op work terms and any other course at the undergraduate level.

Biology

BIOL 4001.03: Environmental Impact Assessment.
This course provides an opportunity to explore all aspects of environmental impact assessment (EIA) as practiced in Canada and in other countries. The course traces the development of EIA over the past 30 years and critically examines the scientific, procedural and political dimensions.
NOTE: All students taking BIOL 4001.03 or ENVIS 4001.03 must have completed 90 credits and be in their fourth year of study or have permission of instructor.
FORMAT: Lecture 3 hours
PREREQUISITE: ENVIS 1000Y.06 or BIOL 3001.03 or BIOL 3002.03, or EQUA 2201.03 or GEOG 2100Y.06 or GEOG 2201.03 or GEOG 2202.03 or INTD 2001.03 or INTD 2002.03 or OCEA 2001.03 and OCEA 2002.03 or SUST 2000.06 or SUST 2001.06.
CROSS-LISTING: BIOL 5001.03
BIOL 4002.03: The Science of Wetland Ecosystems.
See ENVIS 4002.03 in the Environmental Science section of the calendar.

BIOL 4035.03: Human Genetics.
See BIOL 4035 in the Biochemistry section of the calendar.

BIOL 4050.03: Advanced Topics in Developmental Biology.
This course examines the molecular-genetic basis of development using model organisms, e.g., Drosophila and Arabidopsis, and the use of current techniques to identify key genes controlling development and explores how genes, proteins and cells interact in development of animals and plants.
FORMAT: Lecture 3 hours
PREREQUISITE: BIOL 3001.03 or instructor’s permission and BIOL 2020.03, BIOL 2020.03 or GENE 2000.03
CROSS-LISTING: BIOL 5009.03

BIOL 4060.03: Marine Mammalogy.
The course will examine the characteristics that mammals brought with them when they returned to the ocean, the evolution of the different groups of marine mammals, some of their special adaptations, the roles of marine mammals in oceanic ecosystems and general principles of the marine mammal population biology. Students will use information on the biology of marine mammals to explore conservation/management issues.
FORMAT: Lecture 3 hours
PREREQUISITE: BIOL 2060.03 or BIOL 3001.03
CROSS-LISTING: BIOL 5050.03

BIOL 4061.03: Design of Biological Experiments.
This course introduces students with previous training in univariate statistics to the practice and pitfalls of experimental design and data analysis in biology. Lectures and take-home exams are used to demonstrate the fundamentals of design and analysis, with emphasis on potential problems and how they are overcome.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2000.03 or STAT 2000.03 or ECON 2200.03 (Grades of B+ or higher) offered to well prepared honors students as well as graduate students.
CROSS-LISTING: BIOL 5061.03

BIOL 4062.03: Analysis of Biological Data.
The course introduces students to techniques available for the analysis of biological data, including regression, general linear models and multivariate methods. Emphasis is on the practical use of these techniques rather than derivations. Students analyze real and realistic data sets, and are assessed on write-ups of these analyses.
PREREQUISITE: STAT 2000.03 or ECON 2200.03
CROSS-LISTING: BIOL 5062.03

BIOL 4065.03: Sustainability and Global Change.
Sustainability emphasizes equitable social, protected environments, and robust economies. Most countries pursue Sustainable Development yet the concept remains controversial, and defined differently in the North and the South. The global media focus on those that relate to environment and sustainability. Discussion format with Blackboard Learning Internet assignments.
FORMAT: Lecture and discussion 3 hours
PREREQUISITE: BIOL 2000.03 or BIOL 3001.03 and one of BIOL 3005.03, BIOL 3060.03, BIOL 3061.03, BIOL 3062.03, BIOL 3063.03, BIOL 3065.03, BIOL 3066.03, BIOL 3067.03, BIOL 3068.03, BIOL 3069.03, BIOL 3101.03, BIOL 3102.03, BIOL 3161.03, BIOL 3162.03, BIOL 3163.03, BIOL 3170.03 or BIOL 3171.03, BIOL 3560.03 or BIOL 3762.03, or INTD 2001.03 or INTD 2002.03 or permission of instructor
CROSS-LISTING: BIOL 5065.03

BIOL 4160.03: Political Ecology.
Political ecology (PE) examines the politics of the environment but not on specific policies, political theories, or ideologies. PE considers an interesting array of political and socio-economic forces that shape human-environmental relationships. International case studies will be evaluated using several PE tools.
Discussion format with Blackboard Learning Internet assignments.
FORMAT: Discussion 3 hours in class and BIOL 2000.03 or BIOL 3001.03 and one of BIOL 3003.03, BIOL 3060.03, BIOL 3061.03, BIOL 3062.03, BIOL 3063.03, BIOL 3065.03, BIOL 3067.03, BIOL 3069.03, BIOL 3101.03, BIOL 3062.03, BIOL 3264.03, BIOL 3760.03 or BIOL 3762.03, or INTD 2001 or INTD 2002 or consent of instructor
CROSS-LISTING: BIOL 5160.03

BIOL 4220.03: Plant Cell Biology.
This course covers the structure, function, and dynamic properties of plant cellular components including constituent organelles, cytoskeleton, and the cell wall. Current areas of research such as programmed cell death, cell signaling and cellular trafficking are discussed in depth. The course consists of lectures, student seminars, and report writing.
FORMAT: Lecture 3 hours
PREREQUISITE: BIOL 2060.03 or BIOL 2001.03 and one of BIOL 3003.03 or INTD 2000.03 or BIOL 2060.03 or BIOL 3001.03 or BIOL 3002.03 or BIOL 3060.03 or BIOL 3061.03, BIOL 3062.03, BIOL 3063.03, BIOL 3065.03, BIOL 3067.03, BIOL 3069.03, BIOL 3101.03, BIOL 3062.03, BIOL 3264.03, BIOL 3761.03, BIOL 3762.03, or INTD 2001 or INTD 2002 or consent of instructor

BIOL 4302.03: Molecular Immunology.
See course description for MSCI 4302.03 in the Microbiology and Immunology section of this calendar.

BIOL 4323.03: Biologging in Ecology.
This course explores the fundamentals and applications of biologging and biotelemetry: the use of electronic tags to study free-ranging animals and their environment. Students are introduced to the wide range of tags and their diverse applications in biology.
FORMAT: In-class and BIOL 4323.03 or BIOL 5000.03 and BIOL 3018.03 with a minimum of B- in these classes or permission of the instructor
CROSS-LISTING: BIOL 5323.03

BIOL 4335.03: Environmental Impacts in Marine Ecosystems.
See course description for OCEA 4335.01 in the Oceanography section of this calendar.

BIOL 4369.03: Fisheries Oceanography.
See course description for OCEA 4360.03 in the Oceanography section of this calendar.

BIOL 4370.03: Deep Sea Biology.
See course description for MARA 4370.05 in the Marine Biology section or OCEA 4370.03 in the Oceanography section of this calendar.

BIOL 4404.03: Introduction to Pharmacology I.
See course description for PHAC 4404.03, in the Pharmacology section of this calendar.

BIOL 4407.03: Introduction to Pharmacology II.
See course description for PHAC 4407.03, in the Pharmacology section of this calendar.
BIOC 4444.03: Leadership in Science. 
Students will develop leadership skills and build confidence while applying their scientific knowledge. Through in-class activities and a science-based practicum, students gain experience with various aspects of leadership, allowing for integration and application of their expertise. 
PREREQUISITE: Instructor permission. Students should complete at least three (3) third-year courses in their declared major and have a minimum of 3.5 average in their major.

BIOC 4661.03: Biological Oceanography. 
See course description for OCEA 4410.03 in the Oceanography section of this calendar.

BIOC 4662.03: Biology of Phytoplankton. 
See course description for OCEA 4101.03 in the Oceanography section of this calendar.

BIOC 4663.03: History of Marine Sciences. 
See course description for MARI 4444.03 in the Marine Biology section, or SCIE 4001.03 in the Science, Interdisciplinary section of this calendar.

BIOC 4666.03: Benthic Ecology. 
See course description for OCEA 4661.03 in the Oceanography section of the calendar.

BIOC 4667.03: Census of Marine Life. 
The Census of Marine Life recorded over 250,000 known species of eukaryotes in the world’s oceans. In this course, the Senior Scientist for Census 2010 examines the diversity, distribution, and abundance of marine life globally and reviews new approaches to discover new species and to monitor responses to climate change. 
FORMA: Lecture with discussion.
PREREQUISITE: BIOL 2003.03 and BIOL 2060.03 or BIOA 3001.03 and six half credits of BIOL, MARI, or OCEA courses

BIOC 4806.03: Special Topics in Biology. 
Independent study designed for students who wish to study an area of biology not covered in other courses. Students should first consult with a faculty member to arrange the topic of study. An outline of the course content must be approved by the Chair of the Biology Undergraduate Curriculum Committee.
NOTE: For registration forms and further information see: http://biology.dal.ca/Undergraduate/index.htm

BIOC 4807.03: Special Topics in Biology. 
Independent study designed for students who wish to study an area of biology not covered in other courses. Students should first consult with a faculty member to arrange the topic of study. An outline of the course content must be approved by the Chair of the Biology Undergraduate Curriculum Committee.
NOTE: For registration forms and further information see: http://biology.dal.ca/Undergraduate/index.htm

BIOC 4809.03: Special Topics in Biology. 
Independent study designed for students who wish to study an area of biology not covered in other courses. Students should first consult with a faculty member to arrange the topic of study. An outline of the course content must be approved by the Chair of the Biology Undergraduate Curriculum Committee.
NOTE: For registration forms and further information see: http://biology.dal.ca/Undergraduate/index.htm

This course is required of, and restricted to, all Biology Honours programs in which Biology is the major area of study. Students conduct a research project supervised by a research scientist and attend weekly meetings of the class.
NOTE: The course grade is based on the results of the research which are submitted in April as an Honours Thesis, an oral presentation about the research to the class, and an oral or poster presentation at the Honours Cameron Conference in February. Co-op students attend the class by registering for Biology 4901 and 4902. See details about selecting a supervisor for the honours research under the general requirements for Biology honours programs at the beginning of Biology’s calendar entry or on the honours page of Biology’s website http://biology.dal.ca/honours/index.htm

BIOC 4901.03: Honours Research and Thesis I. 
This course is for students who have completed one Special Topics course. For registration forms and further information see: http://biology.dal.ca/Undergraduate/index.htm

FORMAT: Weekly class meetings (1.5 - 3.0 hrs) and an independent research project
CROSS-LISTING: MARI 4901.03
RESTRICTION: Honours students normally in their final year of study.

BIOC 4902.03: Honours Research Thesis II. 
This is the second half of the required course for Biology Co-op honours students. The course description is the same as for Biology 4900X.Y. Students attend BIOC 4901 in the Winter term of their 4th year and BIOC 4902 in the Fall term of their 5th year to accommodate their work terms.
NOTE: 4901 and 4902 must be taken in consecutive winter/fall terms to get a grade for either course. No grade will be recorded for BIOC 4901 until 4902 is also completed and the final Honours Thesis has been evaluated - usually in April following the fall course of 4902. Students normally give a poster presentation about their previous work term at the Honours Cameron Conference in February.
FORMAT: Weekly seminars 1.5 - 3.0 hours
CROSS-LISTING: MARI 4902.03
EXCLUSION: BIOC 4900.06 and MARI 4900.06
RESTRICTION: Students in the Biology Co-op Honours Programme, normally in their final year of study.
Chemistry

Address: Chemistry Building, 2nd Floor
6274 Coburg Road
PO Box 15000
Halifax, NS B3H 4B2

Telephone: (902) 494-3305
Fax: (902) 494-3310
Email: chemistry@dal.ca
Website: http://chemistry.dal.ca

Dean
Munro, C., BA (Hons) (Cambridge), PhD (Cambridge), Professor (Psychology)

Chairperson of Department
Zwanziger, J. W.

Graduate Coordinator
Szelizko, M.

Co-op Academic Advisor
Zhang, P.

Faculty Undergraduate Advisors
Coxon, J. A., BA (Cambridge), MSc, PhD (East Anglia)

Professors Emeriti
Aue, W. A., PhD (Vienna), FCIC
Coxon, J. A., BA (Cambridge), MSc, PhD (East Anglia)

Professors
Birke, C. E. (Chair)

Adjunct Professors
Bond, R. J., BSc (UBC), PhD (McGill), FCIC
Burford, N., BSc (Wales, Cardiff), PhD (Calgary), FCIC

Assistant Professor
Weinelt, P. D., BSc (Dalhousie), PhD (McGill), FCIC

Part-time Academics
Alemán Milán, G., BSc (Superior Polytechnic Institute of Havana), MSc, PhD (Dalhousie)

Senior Instructors
Alexander, L. J., BSc, PhD (Dalhousie)

Instructors
Aubuchon, T. J., BSc (Quebec), BEd (Western), Faculty of Science Killam Professor, University Research Professor and cross-appointment with Physics and Atmospheric Science

Associate Professors
Aubuchon, T. J., BSc (Quebec), PhD (Dalhousie)

Cameron, T. L., BSc (York), PhD (Toronto)

Fonseca, A. A., BSc (Dalhousie), PhD (Alberta)

Greer, K. R., BSc, MSc, PhD (Auckland)

Obrovac, M. N., BSc (SFU), MSc, PhD (Dalhousie), Industrial Research Chair in Materials Science, cross-appointment with Physics and Atmospheric Science

Rainey, J. K., BSc (Goldsmiths), MSc, PhD (Toronto) Science of NMR-3, cross-appointment from Biochemistry and Molecular Biology

Schepp, P. B., BSc (Dalhousie), PhD (Toronto)

Tommazi, L., BSc (MIT), PhD (Barcelona)

White, R. L., BSc (Dalhousie), PhD (McMaster), FCIC

Zhang, P., BSc (Qingdao), MSc, PhD (Dalhousie)

Assistant Professor
Welch, G. C., BSc (Calgary), PhD (Toronto), Canada Research Chair in Organic Functional Materials

Senior Instructors
Aileman Miller, G., BSc (Superior Polytechnic Institute of Havana), MSc, PhD (Dalhousie)

Adjunct Professors
Bond, R. J., BSc (UBC), PhD (McGill), FCIC
Burford, N., BSc (Wales, Cardiff), PhD (Calgary), FCIC

Instructors
Aubuchon, T. J., BSc (Quebec), BEd (Western), Faculty of Science Killam Professor, University Research Professor and cross-appointment with Physics and Atmospheric Science

Associate Professors
Aubuchon, T. J., BSc (Quebec), PhD (Dalhousie)

Cameron, T. L., BSc (York), PhD (Toronto)

Fonseca, A. A., BSc (Dalhousie), PhD (Alberta)

Greer, K. R., BSc, MSc, PhD (Auckland)

Obrovac, M. N., BSc (SFU), MSc, PhD (Dalhousie), Industrial Research Chair in Materials Science, cross-appointment with Physics and Atmospheric Science

Rainey, J. K., BSc (Goldsmiths), MSc, PhD (Toronto) Science of NMR-3, cross-appointment from Biochemistry and Molecular Biology

Schepp, P. B., BSc (Dalhousie), PhD (Toronto)

Tommazi, L., BSc (MIT), PhD (Barcelona)

White, R. L., BSc (Dalhousie), PhD (McMaster), FCIC

Zhang, P., BSc (Qingdao), MSc, PhD (Dalhousie)

Assistant Professor
Welch, G. C., BSc (Calgary), PhD (Toronto), Canada Research Chair in Organic Functional Materials

Senior Instructors
Aileman Miller, G., BSc (Superior Polytechnic Institute of Havana), MSc, PhD (Dalhousie)

Adjunct Professors
Bond, R. J., BSc (UBC), PhD (McGill), FCIC
Burford, N., BSc (Wales, Cardiff), PhD (Calgary), FCIC

Instructors
Aubuchon, T. J., BSc (Quebec), BEd (Western), Faculty of Science Killam Professor, University Research Professor and cross-appointment with Physics and Atmospheric Science

Associate Professors
Aubuchon, T. J., BSc (Quebec), PhD (Dalhousie)

Cameron, T. L., BSc (York), PhD (Toronto)

Fonseca, A. A., BSc (Dalhousie), PhD (Alberta)

Greer, K. R., BSc, MSc, PhD (Auckland)

Obrovac, M. N., BSc (SFU), MSc, PhD (Dalhousie), Industrial Research Chair in Materials Science, cross-appointment with Physics and Atmospheric Science

Rainey, J. K., BSc (Goldsmiths), MSc, PhD (Toronto) Science of NMR-3, cross-appointment from Biochemistry and Molecular Biology

Schepp, P. B., BSc (Dalhousie), PhD (Toronto)

Tommazi, L., BSc (MIT), PhD (Barcelona)

White, R. L., BSc (Dalhousie), PhD (McMaster), FCIC

Zhang, P., BSc (Qingdao), MSc, PhD (Dalhousie)
For the Honours degree, all credits in the honours subject must be passed with a
course selection.

This program is intended to provide a broad training in chemistry while at the
A. Concentrated Honours Degree (20 Credit)

the department and speak with a Chemistry Advisor if necessary.

each course of study. For further information, it is suggested that students contact
should consult the Undergraduate Calendar for first-year course equivalencies in
participated in the Dalhousie Integrated Science Program (DISP) in their first year
requirements that are outlined in the Undergraduate Calendar. Students who
programs. In addition, students must satisfy the College of Arts and Science
3.00.

for chemistry as the central science because of its relevance to so many
other disciplines. Understanding the composition and properties of matter, as well
as the manner in which one substance is transformed into another, is essential to
the study of our physical and natural worlds. As such, chemistry is often a starting
point for many different careers in science. A variety of programs are available,
ranging from focused studies to interdisciplinary options to suit the interests of the
student.

A chemistry degree involves considerable breadth of training in the major
branches of chemistry. These include organic, inorganic, physical, analytical and
biological chemistry. In addition to establishing a solid foundation in the
fundamental principles of chemistry, students who undertake a chemistry degree
develop essential skills that include problem solving, critical thinking,
organization, data analysis, and written and oral communication. The laboratories
associated with courses develop the necessary experience with laboratory
procedures, equipment and safety, and serve to reinforce the concepts learned in
lecture.

II. Degree Programs

The Department of Chemistry offers five main degree programs as either a BSc or
BA: an Honours degree, a Combined Honours degree, a 20 Credit Major degree, a
20 Credit Double Major degree and a 15 Credit degree. Other programs include a
Science Co-op degree, a 15 Credit degree concurrent with a Diploma in
Engineering, a Multidisciplinary Honours degree, and a Minor in Chemistry.

The Honours degree and 20 Credit Major degree in Chemistry, as well as the
Corresponding Co-op programs, are accredited by the Canadian Society for
Chemistry (CSC). CSC accreditation ensures that graduates of these programs have
certain criteria concerning the quantity and quality of their instruction. It
qualifies such graduates for membership in the CSC and to practice chemistry as
professionals.

The sections below list the specific departmental requirements for various degree
programs. In addition, students must satisfy the College of Arts and Science
requirements that are outlined in the Undergraduate Calendar. Students who
participated in the Dalhousie Integrated Science Program (DISP) in first year shall consult the Undergraduate Calendar for first-year course equivalents in
each course of study. For further information, it is suggested that students contact
the department and speak with a Chemistry Advisor if necessary.

A. Concentrated Honours Degree (20 Credit)

This program is intended to provide a broad training in chemistry while at the
same time making provision for the individual interests of students. All honours
students must consult with an academic advisor and obtain approval of their
course selection.

For the Honours degree, all credits in the honours subject must be passed with a
grade of at least C, except CHEM 4901, which requires a minimum grade of B-
for honours students. The minimum GPA for courses in the honours subject is
3.00.

Departmental Requirements

• CHEM 1011.03 or CHEM 1021.03, or CHEM 2021.03 or 2022.03, or DSPF (SCIE 15XX)
• CHEM 2101.03, CHEM 2201.03, CHEM 2301.03, CHEM 2401.03, CHEM 2402.03
• CHEM 3013.03, CHEM 3201.03 or CHEM 3202.03, CHEM 3301.03, CHEM 3401.03 or 3404.03, CHEM 3601.03
• A minimum of 2.5 additional credits in chemistry above the 1000 level
• CHEM 4901.06
• Combined lab hours across CHEM 3XXX and 4XXX must be ≥90.

Other Required Courses

• MATH 1000.03 or 1010.03 or equivalent
• MATH 2101.03
• PHYC 1100.06 or PHYC 1300.06 or PHYC 1280.03 or 1290.03 or equivalent

B. Combined Honours Degree (20 Credit)

Students who wish to study chemistry in conjunction with another subject may
wish to pursue a Combined Honours degree program. The other subject may be
any discipline from the Faculty of Science or the Faculty of Arts and Social
Sciences, or may be a program in Computer Science or Environment,
Sustainability and Society. Chemistry may be the primary subject (defined as the
subject with the larger number of honours credits), or the secondary subject. If the
primary subject area is from the Faculty of Arts and Social Sciences, the degree
granted will be a BA. Students are advised that some of the College of Arts and
Science requirements for a Combined Honours degree differ for the BA and BSc
(see Undergraduate Calendar). Students enrolled in the Combined Honours program must have their program of study approved by advisors in both subject areas. A minimum GPA of 3.00 is
required for science courses in the honours subject(s); a minimum GPA of 2.70 is
required for Arts and Social Sciences courses in the honours subject.

Students must complete an Honours Qualifying Examination in one of the two
subject areas with a minimum grade of B+ for honours qualification. This
requirement is usually, but not necessarily, completed in the primary subject area.
For chemistry, this requirement is satisfied through CHEM 4901.06.

For chemistry as the primary subject area, the requirements are listed below
Departmental Requirements (Chemistry as Primary Subject)

• CHEM 1011.03 or CHEM 1021.03, or CHEM 2021.03 or 2022.03, or DSPS (SCIE 15XX)
• CHEM 2101.03, CHEM 2201.03, CHEM 2301.03, CHEM 2401.03, CHEM 2402.03
• A minimum of three additional credits in chemistry above the 1000 level, including two credits above the 2000 level
• Honours Qualifying Examination (if taken in chemistry through CHEM 4901.06, this counts as one of the three additional credits above).

Other Required Courses (Chemistry as Primary Subject)

• MATH 1000.03 or 1010.03
• A minimum of five credits in the secondary subject above the 1000 level, including two credits above the 2000 level. Consult with the secondary
department for specific requirements.

For chemistry as the secondary subject area, the first-year requirements are as
listed above. A minimum additional five unspecified credits in chemistry are
required beyond the 1000 level, including two credits beyond the 2000 level.

For the Combined Honours degree, a minimum of 11 credits beyond the 1000
level are required in the two subject areas, with not less than five or more than
nine in either. At least two credits in each subject must be above the 2000 level.
Students are advised to consult the specific requirements of the other department
involved.

C. Major Degree (20 Credit)

The 20 Credit Major degree is suited to students who want to focus on chemistry
but wish to have a program that is somewhat less constrained than the Honours
degree. Like the Honours degree, this program is accredited by the Canadian
Society for Chemistry. The departmental requirements are listed below.
Departmental Requirements

• CHEM 1011.03 or CHEM 1022.03
• CHEM 1012.03 or CHEM 1023.03
• MATHE 1100.03 or equivalent
• A total of at least 17 credits in chemistry above the 2000 level

Other Required Courses

• CHEM 1011.03 or CHEM 1022.03 or equivalent
• CHEM 1012.03 or CHEM 1023.03

A limited number of additional credits in chemistry above the 2000 level is required, including a half credit in chemistry above the 2000 level.

D. Double Major Degree (20 Credit)

As with the Combined Honours degree, the Double Major degree allows students to combine a program of study in chemistry with another subject area, but with fewer constraints than the Honours program. The other subject may be any discipline from the Faculty of Science or the Faculty of Arts and Social Sciences, or may be a program from Computer Science or Environment, Sustainability and Society. Chemistry may be the primary subject (defined as the subject with the larger number of credits), or the secondary subject. If the primary subject area is from the Faculty of Arts and Social Sciences, the degree granted will be a BA. Students are advised that some of the College of Arts and Science requirements for a Double Major degree differ for the BA and BSc (see the Undergraduate Calendar).

For Chemistry as the primary subject area, the requirements are listed below:

Departmental Requirements (Chemistry as Primary Subject)

• CHEM 1011.03 or CHEM 1022.03 or equivalent
• CHEM 1012.03 or CHEM 1023.03
• CHEM 3041.03 or CHEM 3042.03
• A minimum of three additional credits in chemistry above the 2000 level, including two credits in chemistry above the 2000 level.

Other Required Courses (Chemistry as Primary Subject)

• MATH 1000.03 or equivalent
• A total of at least 17 credits in chemistry above the 2000 level, including two credits in chemistry above the 2000 level. Consult with the secondary department for specific requirements.

For Chemistry as the secondary subject area, the first-year requirements are as listed above. A minimum addition of five unspecified credits in chemistry are required above the 2000 level, including a minimum of two credits beyond the 2000 level.

For the Double Major degree, a minimum of 15 credits beyond the 2000 level are required in the two subject areas, with not less than five or more than nine in each subject. Students must consult with the Chemistry Co-op Academic Advisor to have their program of courses and work-terms approved.

486 Chemistry
briefly described in this section. More detailed information can be found on the Undergraduate website.

III. Course Descriptions

In rare cases, students may want to study chemistry in conjunction with two or more other subject areas. For these students, the College of Arts and Science offers a Multidisciplinary Honours BSc degree program that may be appropriate. (see the Undergraduate Calendar for more details). Because of the complex nature of this program, students who are considering the Multidisciplinary Honours BSc should consult with an advisor in each of the departments involved to ensure that their program of study is acceptable.

J. BSc Multidisciplinary Honours (20 Credit)

Recommended Electives: BIOC 2300, BIOC 2610, BIOC 3200, BIOC 4701

Other Required Courses

Certificate in Medicinal Chemistry

The Department of Chemistry offers a Certificate in Medicinal Chemistry in conjunction with its 20 credit degree programs. This certificate is intended to reflect that the student has completed a course of study in chemistry that is appropriate for employment or further study related to pharmaceutical development and production. Once the requirements have been fulfilled, the certificate will be noted on the student’s transcript and presented at convocation.

The requirements include the completion of a 20 credit degree program in Chemistry (20 credit major, 20 credit honours, double major, combined honours, etc.), that includes the following courses.

Required courses:

- CHEM 1011.03/1012.03 or CHEM 1021.03/1022.03 or DISP (SCIE 15XX)
- CHEM 2101.03, CHEM 2201.03, CHEM 2301.03 and 2304.03, CHEM 2401.03 and 2402.03
- CHEM 2500.03, CHEM 3401.03 and 3404.05, CHEM 3401.03
- CHEM 4401.03, CHEM 4401.03
- Any two of: CHEM 3301.03, CHEM 4201.03, CHEM 4206.03, CHEM 4301.03, CHEM 4402.03

Recommended Electives: BIOC 2300, BIOC 2610, BIOC 3200, BIOC 4701

Chemistry 487

To be awarded the Certificate in Medicinal Chemistry, students should contact their advisor in the Department of Chemistry no later than four weeks after the start of the term in which they intend to graduate, indicating that they wish to have their qualifications for the certificate assessed.

Il. Course Descriptions

Undergraduate courses that are regularly offered by the Chemistry Department are briefly described in this section. More detailed information can be found on the departmental website at http://chemistry.dal.ca. Students should note the following:

Not all courses are offered every year. Please consult the Academic Timetable for the details of courses offered in a particular academic year.

The first digit of the course number is the year of a student’s program that a course would typically be taken, but this is not meant to be restrictive if a student has the necessary prerequisites or permission of the instructor. For example, a 3000 level course can be taken in the fourth year and 4000 level can be taken in the third year.

The second digit of the course number defines the general sub-discipline:

0 = General Chemistry
1 = Inorganic Chemistry
2 = Analytical Chemistry
3 = Physical Chemistry
4 = Organic Chemistry
5 = Interdisciplinary
6 = Biological Chemistry
7 = Environmental Chemistry
8 = Research Classes
9 = Research Courses

EXCLUSION: Credit will be given for only one of the following combinations:

CHEM 1011.03/1012.03 or CHEM 1021.03/1022.03 or DISP (SCIE 15XX)

The extension following the course number (e.g., XXXX.03) indicates the number of credit hours assigned to the course (e.g., three credit hours). Note that six credit hours are equivalent to one credit.

All chemistry courses, unless stated otherwise, have a minimum grade requirement of C- for their prerequisite chemistry courses. Students with grades below C- in the prerequisite chemistry courses can only register with the permission of the instructor for the course.

Unless stated otherwise, the minimum grade requirement for credit in a chemistry course is a D, except for Honours programs, where the minimum grade requirement for chemistry credit is a C (B- for Honours Qualifying Examination).

Chemistry Resource Centres

The First-Year and Advanced Chemistry Resource Centres are located in Rooms 122 and 115, respectively. The former is staffed with advanced undergraduate and graduate students to help with both lab and course material. First-year students are encouraged to make use of the Concept Room, which is located in the First-Year Resource Centre. Here, first-year instructors will be available at regularly scheduled times to provide aid with course material in a small group or one-on-one atmosphere.

The First-Year Chemistry Resource Centre also houses a number of computers with chemistry-specific programs for students to use. Additionally, there is a selection of reference materials such as molecular model kits and reference texts available to students.


The electronic structures of atoms and molecules are used to explain the reactivity and properties of chemicals. Topics include atomic structure, bonding models, structure and shape of molecules and ions, and acid-base chemistry. It is recommended that students have Nova Scotia grade 12 chemistry or equivalent before taking this course.

CHEM 1011.03, 1021.03 or 4000.03

EXCLUSION: Credit will be given for only one of the following combinations:

CHEM 1011.03/1012.03 or CHEM 1021.03/1022.03 or DISP (SCIE 15XX)

CHEM 1012.03: Concepts in Chemistry: Energy and Reactivity.

The principles of thermodynamics and kinetics are used to explain chemical reactivity and the principles of organic chemistry are used to develop an understanding of organic synthesis. Special topics include electrochemistry, spectroscopy, chirality, polymers, and the chemistry of living systems to illustrate the relevance of chemistry in everyday life.

COORDINATORS: S. Budowski, P. Laws

FORMATS: Lecture 5 hours, lab 3 hours

EXCLUSION: Credit will be given for only one of the following combinations:

CHEM 1011.03/1012.03 or CHEM 1021.03/1022.03 or DISP (SCIE 15XX)

CHEM 1021.03: Engineering Chemistry I.

The electronic structures of atoms and molecules are used to explain the reactivity and properties of chemicals. Topics include atomic structure, bonding models, structure and shape of molecules and ions, and acid-base chemistry. It is recommended that students have Nova Scotia grade 12 chemistry or equivalent before taking this course.
Organic chemistry is introduced through an examination of bonding, conformation and stereoisomerism. Spectroscopic methods (MS, IR, 1H and 13C NMR) are used to determine the structures of compounds. Alkanes, alkenes, aldehydes and ketones are examined with an emphasis on the mechanisms of their reactions.

COORDINATORS: S. Boudreau, P. Laws
FORMATE: Lecture 3 hours, lab 3 hours
EXCLUSION: Credit will be given for only one of the following combinations: CHEM 2401.03/1021.03 or 1022.03 or DISP/SCIE 15XX

CHEM 2401.03: Introductory Organic Chemistry I

Building on CHEM 2401, the properties and reactions of alcohols, ethers, amines, nitro compounds, and aromatic compounds are examined. The reactions are used in synthetic sequences, and reaction mechanisms are studied. The concepts of resonance and acidity become familiar. The use of spectroscopic methods is reinforced.

FORMATE: Lecture 3 hours, lab 3 hours
PREREQUISITE: CHEM 2401.03

CHEM 1022.03: Engineering Chemistry II

The fundamentals and postulates of quantum mechanics are developed from first principles, with applications to illustrative model systems, vibrations, rotations, and optical properties. All phases of matter are examined: gases, liquids, films, and solids, with emphasis on selection of appropriate techniques with practical examples.

FORMATE: Lecture 3 hours, five 4-hour labs every second week; total 20 hours

PREREQUISITE: CHEM 2201.03

CHEM 2201.03: Introductory Analytical Chemistry

The first principles underlying chemical systems and reactivity are explored, with an emphasis on the forces between molecules and the properties of matter. Principles of thermodynamics are presented, including thermochromy, entropy and free-energy relationships. Applications include phase equilibria, chemical equilibria, weather, colloidal properties and electrochemistry.

FORMATE: Lecture 3 hours, lab 4 hours every second week

PREREQUISITE: CHEM 1011.03/1012.03 or equivalent

CHEM 2301.03: Quantum Mechanics and Chemical Bonding

The fundamentals and postulates of quantum mechanics are developed from first principles, with applications to illustrative model systems, vibrations, rotations, and optical properties. All phases of matter are examined: gases, liquids, films, and solids, with emphasis on selection of appropriate techniques with practical examples.

FORMATE: Lecture 3 hours, five 4-hour labs every second week

PREREQUISITE: CHEM 1011.03/1012.03 or equivalent; MATH 1000.03 and MATH 1001.03 or equivalent

CHEM 2304.03: Introductory Physical Chemistry II

The first principles underlying chemical systems and reactivity are explored, with an emphasis on the forces between molecules and the properties of matter. Principles of thermodynamics are presented, including thermochromy, entropy and free-energy relationships. Applications include phase equilibria, chemical equilibria, weather, colloidal properties and electrochemistry.

FORMATE: Lecture 3 hours, lab 4 hours

PREREQUISITE: CHEM 1011.03/1012.03 or equivalent; MATH 1000.03 and MATH 1001.03 or equivalent

CHEM 2401.03: Introductory Organic Chemistry: Structure, Concepts of Mechanisms and Spectroscopy

Organic chemistry is introduced through an examination of bonding, conformation and stereoisomerism. Spectroscopic methods (MS, IR, 1H and 13C NMR) are used to determine the structures of compounds. Alkanes, alkenes, aldehydes and ketones are examined with an emphasis on the mechanisms of their reactions.

FORMATE: Lecture 3 hours, lab 3 hours

PREREQUISITE: CHEM 1011.03/1012.03 or equivalent

CHEM 2402.03: Introductory Organic Chemistry: Reactivity of Functional Groups

The fundamentals and postulates of quantum mechanics are developed from first principles, with applications to illustrative model systems, vibrations, rotations, and optical properties. All phases of matter are examined: gases, liquids, films, and solids, with emphasis on selection of appropriate techniques with practical examples.

FORMATE: Lecture 3 hours, five 4-hour labs every second week; total 20 hours

PREREQUISITE: CHEM 2301.03 or PHYC 2201.03 or PHYC 2202.03 or ENG 2200.03 or permission of instructor

EXCLUSION: PHYC 3301.03, CHEM 3103.03
CHEM 3401.03: Intermediate Organic Chemistry. Topics presented include aromatics, heterocyclic, amino, enolate anions and other methods for forming C-C bonds, concerted reactions, carbohydrates and some topics in natural product chemistry. There is a continuing emphasis on the principles of mechanistic organic chemistry. Students work independently in the laboratory on the synthesis of organic compounds.
FORMA T: Lecture 3 hours, lab 4 hours; total 44 hours
PREREQUISITE: CHEM 2401.03/2402.03
CHEM 3404.03: Intermediate Organic Chemistry: Physical Organic and Spectroscopy. This course provides an introduction to concepts in physical organic chemistry that are used to explain structure-reactivity relationships. Spectroscopic techniques are also described with an emphasis on NMR spectroscopy. The organic laboratory will focus on organic compound separation and identification.
FORMA T: Lecture 3 hours, lab 4 hours; total 44 hours
PREREQUISITE: CHEM 2401.03/2402.03
EXCLUSION: CHEM 3402.03
CHEM 3601.03: Chemistry of Living Systems. The chemical principles governing a wide variety of biological processes are discussed. Structure and mechanism are emphasized in explanations and predictions of the behavior of organic compounds in nature. Specific topics include proteins, activation of carbonyl groups, peptide synthesis and hydrolysis, enzyme catalysis, coenzymes and prochirality.
FORMA T: Lecture 3 hours
PREREQUISITE: CHEM 2402.03
CHEM 4101.03: Advanced Main Group Chemistry. Following a brief overview of the fundamental aspects of preparation, structure and bonding for familiar systems, selected topics are examined in some detail. An emphasis is placed on novel structure and bonding arrangements in comparison with carbon chemistry.
FORMA T: Lecture 3 hours
PREREQUISITE: CHEM 3100.03
CHEM 4102.03: Advanced Transition Metal Chemistry. Various themes of modern transition metal chemistry are examined, including but not restricted to: geometrical structure and bonding, spectroscopic characterization methods, as well as reactivity and reaction mechanisms.
FORMA T: Lecture 3 hours
PREREQUISITE: CHEM 3100.03
CHEM 4120.03: Advanced Organometallic Chemistry. Catalytic and stoichiometric transition metal mediated reactions of fundamental significance in synthetic chemistry are surveyed. Molecular orbital theory is used to understand structure and bonding in metal complexes and the reactivity properties of these species. Relevant examples from the current chemical literature are introduced.
FORMA T: Lecture 3 hours
PREREQUISITE: CHEM 3100.03
CHEM 4205.03: Chemometrics. The application of statistical tools to univariate and multivariate chemical measurements is explored. Topics include descriptive statistics, probability and probability distributions, propagation of errors, hypothesis testing, analysis of variance, experimental design, multivariate and univariate calibration, pattern recognition, exploratory data analysis and mixture analysis. Students are introduced to programming in MATLAB.
FORMA T: Lecture 3 hours
PREREQUISITE: CHEM 2201.03
CHEM 4206.03: Analytical Mass Spectrometry. This course offers a thorough treatment of modern analytical mass spectrometry instrumentation, with applications towards chemical and biochemical analysis. Specific examples include characterization of pharmaceuticals and biomolecules (proteins, carbohydrates), and discussion of field portable instruments. Reaction mechanisms and spectral interpretation are discussed, but are not emphasized in this applied course.
FORMA T: Lecture 3 hours
PREREQUISITE: CHEM 3100.03
CROSS-LISTING: CHEM 5206.03
CHEM 4301.03: Theory of Chemical Bonding. This course develops molecular orbital theory from both qualitative and quantitative perspectives. Topics include the basic principles of the LCAO (Linear Combination of Atomic Orbitals)/MO method, qualitative understanding of MOs in simple molecules, orbital symmetries, through to state-of-the-art techniques for computer computations of molecular properties.
FORMA T: Lecture 3 hours
PREREQUISITE: CHEM 3800.03
CROSS-LISTING: CHEM 5301.03
CHEM 4311.03: Fundamental and Applied Electrochemistry. This course provides a broad introduction to the fundamentals of electrochemistry, including electrochemical theory, double layer modelling and electrochemical methods. Additionally, input to government applications is developed, including corrosion, energy production and energy storage (fuel cells, batteries and supercapacitors).
FORMA T: Lecture 3 hours
PREREQUISITE: CHEM 2301.03 and CHEM 2304.03
CROSS-LISTING: CHEM 5331.03
CHEM 4401.03: Synthesis in Organic Chemistry. A number of important organic reactions are examined in depth with particular attention to regioselectivity and the development of relative or absolute stereochemistry. Applications of these reactions in the synthesis of complex molecules are illustrated with recent examples from the literature.
FORMA T: Lecture 3 hours
PREREQUISITE: CHEM 3801.03 or equivalent
CROSS-LISTING: CHEM 5401.03
CHEM 4402.03: Organic Structure Determination. Nuclear magnetic resonance spectroscopy and mass spectrometry are emphasized in solving structural problems. Topics include 2D NMR, correlation of structure with chemical shifts and coupling constants, operation of NMR spectrometers, NMR relaxation, analysis of spectral patterns, the vector model of 1D and 2D experiments and ionization methods in mass spectrometry.
FORMA T: Lecture 3 hours
PREREQUISITE: CHEM 2304.03 or CHEM 3401.03
CROSS-LISTING: CHEM 5402.03
CHEM 4502.03: Polymer Science. Aspects of synthesis, analysis, characterization, structure and uses of synthetic and naturally occurring macromolecules are explored. Emphasis is on the applications of standard methods of organic synthesis, analytical separations, and physico-chemical characterization. There is no laboratory, but students will do an independent literature project.
FORMA T: Lecture 3 hours
PREREQUISITE: CHEM 2201.03 and 2301.03 and 2304.03 and 2402.03
CHEM 4504.03: Diffraction Techniques in Solid State Chemistry. All chemical elements and compounds can exist as crystaline solids. This course studies the arrangements of atoms and molecules in such solids and examines the methods used to determine these structures. Particular emphasis is placed on the techniques of X-ray crystallography.
FORMA T: Lecture 2 hours, lab 3 hours
PREREQUISITE: CHEM 2101.03 and MATH 2011.03 and 2012.03
FORMA T: Lecture 3 hours
PREREQUISITE: Math 1000, PHYS 1200.03/1290.03 or PHYS 1300 and CHEM 1011/1012
CROSS-LISTING: PHYS 4905.03, OCS 4995.03, OCS 5995.03
CHEM 4601.03: Principles of Biomolecular and Drug Molecule Design. The course covers both general principles and biochemical considerations in drug design. The fundamental topics provide evidence to design new chemical structures as putative therapeutics for a human or veterinary organism.
pathological problem. Students in chemistry are strongly recommended to take CHEM 3601.03 prior to registering in this course.

**CHEM 4002.03: Biophysical Characterization of Macromolecules.** Covers methods allowing determination of sub-molecular and atomic-level structure and dynamics of biomacromolecules in physiological settings (e.g. solution-state or lipid bilayers) including: fluorescence, electronic and vibrational (circular dichroism and NMR) spectroscopy; light vs. X-ray vs. neutron scattering; and, single molecule methods.

**CHEM 4003.03: Research Project in Chemistry I.** Students carry out research projects under the supervision of a faculty member, and submit a report and make an oral presentation.

**CHEM 4801.03: Research Project in Chemistry II.** Students carry out research projects under the supervision of a faculty member and submit a report and make an oral presentation. This course is intended for those students in the Major program who wish greater exposure to independent scientific research.

**CHEM 4802.03: Research Project in Chemistry III.** Students carry out research projects under the supervision of a faculty member and submit a report and make an oral presentation. This course is intended for those students in the Major program who wish greater exposure to independent scientific research.

**CHEM 4901X/Y.06: Honours and Major Research Project.** This course is required for students in the latter stages of the honours program. Students carry out research projects under the supervision of a faculty member and submit reports and make oral presentations to the Department. NOHE Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

---

**Acting Director**

Myra, T. (902) 494-6448

**Co-op Coordinator**

Galway, L., BSc (CBU) (902) 494-1768

**Employer Development Manager**

Myra, T. (902) 494-6448

**Academic Director**

Obrovac, M. N., BSc (SFU), MSc, PhD (Dalhousie)

**Co-op Academic Advisors**

Cyrus, T., Economics (902) 494-6992

Dobson, M., Biochemistry (902) 494-7182

Dowd, M., Statistics (902) 494-1048

Labrie, D., Physics (902) 494-2322

McAllister-Irwin, N., Marine Biology (902) 494-3818

McAvoy, M., Biology (902) 494-7072

Milson, R., Mathematics (902) 494-6368

Mushkat, P. W., Environmental Science (902) 494-8056

Stolle, D. B., Microbiology/Immunology (902) 494-2590

Wach, G., Earth Sciences (902) 494-8019

Zhang, P., Chemistry (902) 494-3323

---

**Science Co-operative Education**

Science Co-operative Education (Science Co-op) is an academic program where academic study is combined with career-related work experience. Students complete three work terms throughout their academic study terms and graduate with a Bachelor of Science, Co-op. Science Co-op is available in Biochemistry and Molecular Biology, Biology, Chemistry, Earth Sciences, Environmental Science, Economics, Marine Biology, Mathematics, Microbiology and Immunology, Physics and Atmospheric Science, and Statistics. Students may choose a Major, Honours, or Double Major (where only one of the disciplines is a recognized Science Co-operative Education program).

Students who are accepted into Science Co-op generally begin their first work term in January or May of Year II. Work terms are paid employment related to the student's field of study. The program includes three work terms and a minimum of eight academic terms comprising 20 academic credits. The Science Co-operative Education degree program normally takes approximately four and a third years, depending upon the field of study chosen.

Students in Science Co-op must plan their academic course load carefully under the guidance of the departmental Co-op Academic Advisor. Science Co-op students have limited opportunity to take certain numbered courses and the choice of courses in the summer academic term may be limited. It is important that students realize that successful completion of the work terms is an integral part of their academic studies and degree.

**A. Eligibility**

Students must be eligible to work in Canada and demonstrate sufficient academic potential (B average or better, consult departmental listings). Students apply to this program and approval of the academic department and Science Co-op Office is required for entry. Applications must be received by April 15. With the permission of the Co-op Academic Advisor, some students may be admitted on a
probationary basis pending an improvement in their grades. Co-op students whose grades drop below a B average (3.00 GPA) overall may be required to withdraw from the Science Co-op program. Academic departments may, at their discretion, allow a probationary period before the requirement to withdraw is enforced. During this probationary period, the student may not undertake any new work term commitments, but may honour pre-existing arrangements.

B. Science Co-op Seminar Series, SCIE 2800.00

This online course is a required prerequisite to the first work term and is a mandatory component of the Science Co-op program. All Science Co-operative Education students are required to register for, and complete this course, upon acceptance into the program. A grade of Pass is required before students participate in the job competition for the first work term experience. This course is designed to introduce Science Co-op students to aspects of career development and preparation for their work terms. SCIE 2800.00 is a required non-credit course which is offered every term. Students must complete this course at least four months prior to the first work term. More detailed information about the course may be found at http://www.sciencecoop.dal.ca

C. Work Terms

A work term is a period of study conducted in an employment environment and each work term is offered as a course listing within each academic discipline for registered Science Co-operative Education students only. Although the Co-op Office seeks to provide an adequate number of job postings, it is ultimately the responsibility of the student to arrange their work term. Students are expected to conduct their own job search as well. During a work term, the student is an employee in matters pertaining to the conditions of employment and is a student for the purpose of academic evaluation. The university accepts no liability for the working environment of the students work term. Students are remunerated according to employer policy and the labour laws of the province in which the work term takes place. Students must be remunerated, unpaid work terms are not permitted. During the work term the student and employer normally receive contact from a Co-op staff member to ensure that the academic objectives of the work term are being met. Failure to complete all requirements of a work term will result in a grade of F.

Work terms must be a minimum of 14 weeks at 35 hours per week, or an equivalent combination of hours and weeks worked. Three work terms are required for graduation with a Bachelor of Science, Co-op.

D. Work Term Sequence

Work terms alternate with study terms in a pattern set by you and your Co-op Academic Advisor, for each program. The work term sequence must be noted on the application to Science Co-op. Any request for change of work term sequence must be approved by the departmental Co-op Academic Advisor and the Director, Science Co-op. Requests must be received by the Science Co-op office 14 weeks before the next scheduled work term i.e., before January 15, May 15, or September 15. Two consecutive work terms are permitted. Three consecutive work terms may not be permitted.

Please consult with the Co-op Academic Advisor, in your discipline of choice, regarding your work term sequence. Work term sequences must be set and approved with your Co-op Academic Advisor and Science Co-op office.

E. Work Term Reports

At the end of each work term, each student must submit an acceptable work term report. Specific guidelines for writing this report and submission deadlines are available on the Science Co-op website (http://www.sciencecoop.dal.ca). Satisfactory work term reports are required for continuation and graduation in the Co-op program. Satisfactory performance in the work place is also required and Co-op employers submit an Employer Evaluation for students in the program. The grade for the work term is based upon the work term report, employer and student evaluations of the work term, and the work term visit. Failure to complete the work term requirements will result in the student being required to withdraw from the Science Co-op program and a failure mark would be given for the work term.

F. Fees

Science Co-op students are required to register for their work terms and pay Co-op Fees regardless of whether the services of the Co-op office are used. Co-op Fees are program fees, not work term fees, and are due and payable even if the student withdraws, does not secure a work term, or is required to withdraw, from their work term once employment has begun. Consult the Science Co-op office or website for complete details.
Earth Sciences

Location: Life Sciences Centre, Room 3096
Halifax, NS B3H 4R2
Telephone: (902) 496-2368
Fax: (902) 496-6889
Email: earth.sciences@dal.ca
Website: http://dal.ca/earthsciences

Dean
Moncur, C., BA (Hons), PhD (Cambridge), Professor (Psychology)

Chair of Department
Jamison, R. A., BSc (Dalhousie), PhD (MUN)

Undergraduate Advisor
Plug, L. (494-1200)

Co-op Academic Advisor
Walls, C., BSc, MSc (Dalhousie)

Graduate Coordinator
Gamo, J. (494-6612)

Professors Emeriti
Cooke, H. B. S., MSc, BSc (Winchester)-remand
McColl, I. S., PhD (Stevens)
Milligan, G. C., MSc (Dalhousie), PhD (Harv)
Raymond, P. H., BSc (Toronto), PhD (UCB)
Scott, D. B., BSc (Washington), MSc (Washington State), PhD (Dalhousie)
Sterling, S., PhD (Queens), Plano

Professors
Gibbings, M. R., BA (Ottawa), PhD (Ottawa)
Grujic, D., BSc (Belgrade), MSc (ETH Zurich)
Wach, G. D., BA (Watershed), MSc (Dalhousie), PhD (Dalhousie)

Associate Professors
Cadeau, N., BA (Ottawa), PhD (Ottawa)
Fedorchuk, Y., MSc (Moscow State Univ), PhD (Victoria)
Gamo, J., BSc (Dalhousie), PhD (Dalhousie)
Nedimovic, M., BSc (Belgrade), MSc (Tokyo)

Assistant Professors
Coady, L., BSc (Queen's), MSc (Dalhousie), PhD (Dalhousie)
Kellman, L., BA (Hons), MSc (Dalhousie)

Senior Instructors
Greene, C., BSc (Dalhousie), MSc (Dalhousie)
Ryan, A. M., BSc (Dalhousie), MSc (Dalhousie), PhD (Dalhousie)

Instructors
Cor, R., BSc (Dalhousie), MSc (Dalhousie)

Cross Appointment
Kashima, D., PhD (Ottawa), Major appointment in Environmental Science

Adjunct Professors
Adams, J., Dip in Geology (Univ. of Clausthal), PhD (Tec. Univ. of Berlin), Royal Holloway
Anderson, A., BSc (Univ. of Windsor), MSc (Munster), PhD (Queens'), St. Francis Xavier
Bass, S., BSc (Honours), BSc, MSc (Dalhousie), PhD (Dalhousie), Canada-NS Offshore Petroleum Board
Brown, D., BSc (Dalhousie), MSc (Dalhousie), Canada-NS Offshore Petroleum Board
Clarke, R., BSc, MSc (Univ. of Edinburgh), PhD (Edinburgh)
DeBaptiste, M., BSc (St. Mary's), PhD (Dalhousie), Canada-NS Offshore Petroleum Board
Donohue, J., BSc (Dalhousie), PhD (Dalhousie), Canada-NS Offshore Petroleum Board
Dowling, J., BSc (Dalhousie), PhD (McMaster), St. Mary's University
Fedak, T. J., BA (NSCAD), PhD (Dalhousie)
Fernandez, R., BSc (Lebanon), MSc (Dalhousie), PhD (Dalhousie)
Francois, D. G., BSc (Univ of Laval), MSc, PhD (Dalhousie)
Garde, C., BSc (Abbotsford College), MS (U. of Victoria), PhD (Univ of Maine)
Harley, J., PhD (Toronto), St. Mary's University
Janus, L., BSc, MSc (Masaryk State U, Czechoslovakia), PhD (Charles), GSC Atlantic
Kellman, L., BA (Hons), MSc (Dalhousie)
Kettner, Y., BSc (Binghamton Univ), PhD (Calgary), University of Saskatchewan
Kosten, E., BSc (Groningen), MSc (Univ of Amsterdam), PhD (Dalhousie)

I. Introduction

Earth Science is a holistic discipline whose focus of study is the Earth System. It includes the geosciences which address the solid earth, but necessarily also may extend to study of the atmosphere, hydrosphere, oceans and biosphere. Broadly, Earth scientists work to understand 1) how the Earth System works; 2) how it evolved to its current state; 3) the processes and distribution of Earthly physical resources such as fossil fuels, minerals, and water; and 4) limits to and consequences of the use of physical resources by humans. Examples of specific questions within Earth Sciences include: How was the Earth formed? What is its composition? Where do we look for oil? For reliable water supplies? What are the relationships between glaciers, rivers, and climate, both now and in the deep past? To answer questions such as these, Earth scientists typically use methods from the foundation sciences -- physics, chemistry, biology, mathematics -- along with discipline-specific methods and modern tools including computing and satellite mapping. Some Earth scientists also need to consider or draw expertise from the
social sciences, particularly as humans collectively become a significant agent in modifying components of the Earth System.

Earth Science is of tremendous importance to Canadians and can be an immensely satisfying profession. Earth scientists are employed in universities, government agencies, the oil, gas and mineral industries, environmental consulting, and beyond.

The Earth Sciences department offers programs and courses designed to meet the needs of students with varying goals for her/his undergraduate education. In general, the following summary-recommendations can be made:

- To prepare to become a professional geoscientist, students should enroll in a 20 credit BSc or BA degree (Major, Honours or Combined) and must know the requirements for professional registration by completing one or both of the Certificates for Geoscientists.
- To prepare for postgraduate study (MSc or PhD) in Earth Sciences or a related field, students should pursue a BSc Concentrated Honours in Earth Sciences or Combined Honours with a related subject, and consider one of the Certificates listed above.
- Students seeking an undergraduate preparation for Law, Education, or another professional program outside of Earth Sciences, or to complement another subject, should consider a BSc or BA Major or Double Major.
- Electives courses and Minor. Earth Sciences is about understanding how the Earth 'works'. As such it makes an excellent general education subject. Several ERTH courses that may be suitable electives are listed below.

High School Preparation

Students in high school who plan a career in Earth Sciences, should have Advanced Math or Pre-calculus Math, plus Chemistry and Physics. Note that only Mathematics is a prerequisite, but the others are recommended. The student should ideally aim to make up deficiencies in high school preparation in the first year at Dalhousie.

II. Degree Programs in Earth Sciences

In addition to the departmental requirements for each program, which are listed below, students must satisfy the requirements outlined in the "Degree Requirements" section of this calendar.

A. Core Requirements for all BSc and BA (20 credit) Degrees

All 20 credit degrees in Earth Sciences share the following requirements:

1000 level

- ERTH 1000.03 and ERTH 1001.03, or equivalent. Students in the Integrated Science Program should consult the department regarding equivalencies.
- ERTH 2000.015: Earth Sciences Field School
- ERTH 2812.03: Earth Minerals Science I
- ERTH 2813.03: Earth Minerals Science II
- ERTH 2111.03: Field Methods (Prerequisite: ERTH 2000.015)
- ERTH 2201.03: Sediments and Sedimentary Rocks
- ERTH 2500.03: Geochronology

2000 level

- ERTH 3140.03: Structural Geology
- ERTH 3301.03: Stratigraphy

Other required courses

- MATH 1000.05 (recommended) or MATH 1215.03 or equivalent
- CHEM 1011.03 and CHEM 1012.03

B. BSc or BA (20 credit) Major

Complete the core requirements (Section A), plus

- MATH 1010.03, or MATH 2010.03, or MATH 2300, or STAT 1000.03 or STAT 2000.03 (BSc only)
- ERTH 3000.015: Intermediate Field School
- Advanced ERTH electives: 18 to 36 credit hours in ERTH courses beyond the 1000-level, including at least 18 credit hours beyond the 2000-level.

C. BSc or BA (20 credit) Double Major

Complete the core requirements (Section A), plus

- MATH 1010.03, or MATH 2010.03, or MATH 2300, or STAT 1000.03 or STAT 2000.03 (BSc only)
- ERTH 3000.015: Intermediate Field School or a field course in the other subject
- Advanced ERTH electives: 6 to 36 credit hours beyond the 1000-level, including at least six credit hours above the 2000-level.

Students in Double Majors should consult the department when choosing their sequence of courses. Exceptions to requirements may be made where justified by a student's particular subject combination.

D. BSc or BA (20 credit) Honours

The Honours programs are intended for students who combine a high level of academic achievement with a desire to complete independent research during an undergraduate degree. Students who plan to pursue a postgraduate degree (MSc and/or PhD) are recommended to complete an Honours degree.

The department offers both Concentrated Honours and Combined Honours degrees. The Concentrated program provides a broad education in Earth Sciences while allowing for the individual interests of students. In the final year, students in Concentrated Honours complete an independent research project leading to a thesis (ERTH4200X/Y) on a topic within the broad realm of Earth Sciences.

Combined Honours programs allow students to combine Earth Sciences with another subject. The other subject may be from any discipline within the Faculty of Science or the Faculty of Arts and Social Sciences, or may be a program in Computer Science or Environment, Sustainability and Society (ESS). Common "other subjects" include Ocean Sciences, Chemistry, Physics, Biology, and ESS.

The thesis may be completed in either Earth Sciences (ERTH4200X/Y) or the other subject, and usually in the subject in which the student has the greatest number of courses. The department in which the thesis is written should be chosen in consultation with both departments during the student's third year.

Students will not normally be officially registered into an Honours program until their third year, at which time they have completed most of the required second and third year courses. Students should register to do Honours at that time by contacting the department's undergraduate advisor.

It is the responsibility of students to arrange for a supervisor for their thesis research. Theses in Earth Sciences may be supervised by a faculty member of the department or by an external scientist, subject to the approval of the Honours coordinator. Students should begin to search for a supervisor during their third year and should have a project and supervisor in place by May of their third year, i.e., preceding the year in which the thesis is completed. A list of potential thesis and supervisors are posted by the department during the winter semester, but students are encouraged to begin an independent search prior to this posting.

An oral defence follows completion of the thesis. The defence is graded independently from the thesis and comprises a student's Honours Qualifying Examination. A grade of B- or better must be achieved on the Honours Qualifying Examination. The thesis and defence must be completed by the posted deadline in March. Students who complete after this date must re-register for the following academic year in EARTH4200X/Y, pay the fees, and graduate at the spring convocation of the next academic year.

Combined Honours students who complete a thesis in the other subject should consult that department for policies and deadlines regarding their thesis course.

Departmental Requirements for Honours

Honours students are required to achieve a GPA of 3.5 for courses in the honours subject(s), and a grade of C or better in each ERTH course. For First-Class Honours, students must achieve a GPA of 3.70 in the honours subject(s) and a grade of A- or better on the Honours Qualifying Examination.

Honours students who intend to pursue registration as a professional geoscientist, or wish to leave that option open, should complete the Certificate in Environmental Geoscience, Certificate in Geology, or both, in addition to satisfying Honours requirements.
Concentrated Honours, BA or BSc

- Core requirements (Section A)
  - MATH 1010.03, or MATH 2010.03, or STAT 1003.03 or STAT 2003.03
  - PHYS 1190.03 and PHYS 1290.03, or PHYS 1300X.06
  - ERTH 1000.05: Intermediate Field School
  - ERTH 4200X.06: Honours Thesis
  - Additional ERTH electives: 2 to 3 credit hours in ERTH courses beyond the 1000 level, including at least 15 credit hours beyond the 2000 level.

Combined Honours, BA or BSc

- Core requirements (Section A)
  - MATH 1010.03 or MATH 2010.03 or STAT 1003.03 or STAT 2003.03 (BSc only)
  - PHYS 1190.03 and PHYS 1290.03 or PHYS 1300X.06
  - ERTH 1270.03: Intro to Applied Geophysics
  - ERTH 3000.05: Intermediate Field School or a field course in the other subject.
  - ERTH 4200X.06: Honours Thesis, or a thesis in the other subject and six credit hours of ERTH electives above 3000.
  - Advanced ERTH electives: 3 to 21 credit hours in ERTH courses beyond the 1000 level, including at least 3 credit hours beyond the 2000 level.

Students in Combined Honours should consult the department when choosing courses. Exceptions to requirements may be made where justified by a student's particular subject combination.

E. Co-op Education in Earth Sciences

Co-operative Education in Science (Science Co-op) is a program where academic study is combined with paid career related work experience. Students alternate three workterms throughout their academic study terms and graduate with a Bachelor of Science Co-op. Science Co-op enables students to apply their knowledge directly while providing them with work experience that assists in making educated career choices. Students apply to join Science Co-op before their second year of study. A minimum GPA of 3.5 is required. If accepted into the Science Co-op program, students are required to register for and attend the Science Co-op Seminar Series (SCIE 2000.00) in the fall term of the year they join.

See the “Co-operative Education in Science” section of this calendar, or https://www.sciencecoop.dal.ca for information on Science Co-op such as Science Co-op requirements, eligibility, how to apply, deadlines and other related information.

F. BSc or BA (15 credit) Minor in Earth Sciences

A BSc or BA (15 credit) degree program with a Minor in Earth Sciences is available to students in the Faculty of Science.

Departmental Requirements

- six credit hours of ERTH courses at the 1000 level, including ERTH 1080.03 (Geology I)
- a minimum of 18 credit hours in Earth Sciences (ERTH) courses at the 2000 level or higher, must include at least six credit hours at the 2000 level or higher

G. Minor in Earth Sciences

Students in other 20 credit degree programs may choose to include a Minor in Earth Sciences in their program. Requirements are outlined in the College of Arts and Science Minors section of this Calendar starting on page 129.

H. Minors available to students in Earth Sciences

Minor programs allow students to develop subject specialties in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year Major or Concentration Honours program (including co-op programs).

Students in a 20 credit BSc or BA program in Earth Sciences may choose to include a Minor selected from the list of approved Minors beginning on page 126 in this Calendar. Note that courses counted toward your Major or Honours program cannot be used to fulfill the requirements of a Minor program.

I. Other Programs

BSc/Engineering or BA/Engineering Concurrent Programs

Students normally complete the requirements for a 15 Credit BSc or 15 Credit BA, and the first two years of engineering studies leading to the Diploma in Engineering. The concurrent program can be completed in three years. Details are provided in the College of Arts and Science Degree Requirements section of the calendar.

Diplomas, Certificates, and Language Proficiency Certificates

In combination with a BSc or BA in Earth Sciences, there are certificates and diplomas that can be obtained to emphasize areas of proficiency. Courses counted toward a Major, Honours or Minor programs may also be used to fulfill the requirements of a Certificate. For a complete list and details refer to the College of Arts and Science Degree Requirements starting on page 129 of the calendar.

Certificates offered by the Department of Earth Sciences include:

Certificates for Geoscientists

Knowledge Requirements for Professional Practice as a Geoscientist

Geoscience is a regulated profession in most of Canada. Individual provinces and territories have acts that restrict the practice of geoscience to individuals who are registered members of professional associations. In Nova Scotia, the Association of Professional Geoscientists of Nova Scotia (APGNS) is the licensing body which fulfills this mandate. APGNS and other provincial geoscience associations, under the guidance of Geoscientists Canada, have high standards of geoscience practice and education.

Students who intend to pursue geoscience as a profession, or simply want the most in-depth education in geoscience, should complete the Certificate in Geology, or Certificate in Environmental Geoscience, or both. These Certificates are comprehensive courses of sequences intended to prepare a student for professional practice in modern geoscience, and to meet formal requirements for registration in the Geology and Environmental Geoscience streams, respectively.

Certificate requirements are more specific and stringent than degree requirements in terms of the courses required in Earth Sciences and in the Foundation Sciences. However, registration occurs in steps after graduation and is judged by a student needing extra courses (beyond the 20 credit degree) in order to complete the Certificate(s) and meet knowledge requirements for registration.

These Certificates have been developed within Dalhousie University with the intention of meeting the knowledge requirements for registration for Professional Geoscientists. However, registration occurs in steps after graduation and is administered by professional associations whose requirements may change over time and may vary between jurisdictions. Consult the professional associations – Geoscientists Canada and APGNS – for additional information on registration.

Shared requirements for the Certificate in Geology and the Certificate in Environmental Geoscience

Students should take the 1000 level ERTH prerequisites for ERTH 2000 and 2001 in year one of their program. As of 2015, this is ERTH 1080 and ERTH 1090. For prior years, ERTH 1080 and one of ERTH 1030, ERTH 1090 or ERTH 1090 are acceptable.

Foundations Sciences

- CHEM 1011.03 and CHEM 1021.03
- PHYS 1190.03 and PHYS 1290.03
- MATH 1100.03 or MATH 1200.03 or STAT 1003.03
- MATH 1010.03 or MATH 1290.03 or MATH 1500X.03
- MATH 2300.05, MATH 2100.03, MATH 2200.03, STAT 1001.03
- an additional two courses from MATH, PHYS, CHEM, STAT, CSCI, or BIOL.

Each course must count toward a BSc degree in that subject.

Earth Sciences

- ERTH 2000.03: Field School
- ERTH 2001.03: Earth Materials Science I
3. In addition, students must complete a research project with an emphasis in geographic information science.

2. In addition, students must complete at least two of the following courses, with a minimum grade of B- in each:

- ERTH 2203.03: Sediments and Sedimentary Rock
- ERTH 2270.03: Introduction to Applied Geophysics
- ERTH 2300.03: Geochronology
- ERTH 3400.03: Computer Camp
- ERTH 3410.03: Structural Geology
- ERTH 3503.03: Stratigraphy
- ERTH 3480.03: Geomorphology

*an additional five courses in ERTH beyond the 1000 level, including three courses beyond the 2000 level. An Honours thesis (ERTH 4200X/Y) counts as two courses towards this requirement.

Certificate in Geology (in addition to shared requirements):
- ERTH 1010.03: Igneous Petrology
- ERTH 3020.03: Metamorphic Petrology
- ERTH 4505.03: Tectonics

Certificate in Environmental Geoscience (in addition to shared requirements):
- two courses from: ERTH 3400.03 (Fundamentals of Hydrogeology), ERTH 3402.03 (Practical Hydrogeology), ERTH 3701.03 (Fundamentals of Hydrology), ERTH 4520.03 (GIS Applications to Geological Sciences), ERTH 4530.03 (Environmental Remote Sensing). NOTE: ERTH 3500 is a prerequisite for 4520 and 4530.
- ERTH 4410.03: Environmental Geoscience.

Certificate in Geographic Information Science

Faculty of Science offers a Certificate in Geographic Information Science. The certificate is intended to reflect that the student has completed courses of study in geographic information systems and geomatics that are appropriate for further study or employment related to geographic information science.

A Certificate can be completed by a student in an undergraduate program, in addition to the student's regular program requirements. Completion of each Certificate would be noted on the student's transcript. The purpose of a "Certificate in Geographic Information Science" is to show that the graduate has training in geographic information science, in addition to their academic program requirements.

Students should enrol in the “Certificate in Geographic Information Science” by contacting the Certificate Coordinator. Contact information for the Coordinator is available on the Faculty of Science website. Students can enrol when in their second, third or fourth year of their undergraduate program. Early enrolment is advised.

Certificate Requirements:
1. Students must complete the following courses, with a minimum grade of B- in each:
   - ENVS/ERTH/GEOG 3500.03: Geoscience Information Management
   - ERTH/GEOG 4520.03: GIS Applications to Environmental and Geologic Science

2. In addition, students must complete at least two of the following courses, with a minimum grade of B- in each:
   - GEOG 2000.03: Cartography
   - GEOG 2000.03: Space, Place and GIS
   - BIOL/ENVS/GEOG 3033.03: Spatial Information and GIS in Ecology
   - ERTH/GEOG 4530.03: Environmental Remote Sensing
   - ENV 2100.03: Environmental Informatics
   - ENVS/GEOG 3400.03: Environment and Human Health
   - SUST 3000.03: Environmental Decision Making

3. In addition, students must complete a research project with an emphasis in geomatics or geographic information science (as pre-approved by the Certificate Coordinator) in one of the following sets of courses, with a minimum grade of B-:
   - BIOL/MARI 4900.06 or 4901.03+4902.03: Honours Thesis
   - BIOL/MARI 4800.03 or 4801.03: Special Topics
   - ENV 3001.03: Directed Readings
   - ENV 4901.03+4902.03: Honours Thesis
   - ERTH 4100.06: Research Project
   - ERTH 4200.06: Honours Thesis
   - ERTH 4513.03 or 4515.03: Directed Studies
   - SUST 4800.03: Independent Study
   - SUST 4900.09: Honours Thesis

Students completing an undergraduate program in a discipline other than those listed above will need to complete the project through a directed readings or honours thesis course listed within their home department. The project must be approved by the Certificate Coordinator.

Research Project Guidelines for the Certificate in Geographic Information Science

In the research project in GIS students learn how to design, manage and complete a research project that emphasizes the use of a geographic information system (GIS). Projects can be completed individually or in groups and will proceed with the identification of a suitable research problem. Students will work to solve the problem through acquiring, organizing, analyzing and presenting data using GIS. Projects must include a substantive analytic component where GIS is central to the methods employed.

The focus of project evaluation is on the methodological and organizational design, the application of appropriate GIS techniques, and proper reporting of the results. The GIS component is accomplished through independent work. It is assumed that students already know the GIS concepts and functions required or are capable of learning them, and are proficient in the use of at least one GIS package.

Supervision and evaluation of research projects should include, at minimum, input from a professor or GIS technician competent in geographic information science, methods and technologies. Evaluation of the research project should ideally include three written components: a proposal, a final report and a presentation. In group evaluations the supervisor may adjust final grades based on performance and contribution to the group.

Certificate in Environmental Impact Assessment (EIA)

The Faculty of Science offers a Certificate in Environmental Impact Assessment for students majoring in environmental areas and wishing to pursue additional training in EIA. This certificate is also available for students in International Development Studies (IDS) in the Faculty of Arts and Social Sciences and the College of Sustainability. Completion of the Certificate will be shown on a student’s transcript. For further information, contact Pat Lane (patricia.lane@dal.ca).

Students must have received a minimum grade of B for all courses counted toward the certificate.

Certificate Requirements:
- 4. Required EIA CLASS: BIOL 4001.03 or ENVS 4001.03 or ENVS 4772.03 (minimum of 1.5 credits) to be taken in the fourth year.
- 5. Introductory Class in Science or IDS (Table 1) (minimum of 0.5 credits)
- 6. 3rd Level Environmental courses with lengthy theoretical content from Table 2 (minimum of 1.5 credits)
- 7. 3rd Level Methods courses that provide field, laboratory, statistical, modelling and related experience from Table 3 (minimum of 0.5 credits)
- 8. 3rd and 4th Level Supplementary courses in Major and Related Disciplines from Table 4 (minimum of 1.0 credits)

Note: As usual, students will be required to meet the stated pre-requisites of all courses listed below or the permission of the instructor. Several courses on Tables 1-4 include cross-listings that are given in parentheses. No course may be included twice for the Certificate using different cross-listings.

Disclaimer: This Certificate in EIA has been developed within Dalhousie University and it is not designed to fulfill any governmental and/or professional requirements outside of the university in Canada or abroad.

Certificate Requirements:
Table 1. Introductory Courses (minimum of 0.5 credits from the following list):

- BIOL 2000.03: Introductory Ecology
- ERTH 2410.03: Environmental Issues in Earth Science
- ENVS 1010X/Y: Introduction to Environmental Science
- GEOG 2100X/Y: Environment and Culture (SOSA 2100.06)
- INTD 2001.03 Introduction to Development 1 (GEOG 2201.03)
- INTD 2002.03 Introduction to Development 2 (GEOG 2202.03)
- OCEA 2000X/Y.06 (or OCEA 2000.03 + OCEA 2002.03) The Blue Planet
- SUST 2000.06 HumanitY in the Natural World
Table 3. Field and Methods-based Courses (minimum of 0.5 credits from the following list)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUST/ENVS 3502.03</td>
<td>The Campus as a Living Laboratory</td>
</tr>
<tr>
<td>STAT 3345.03</td>
<td>Environmental Risk Assessment</td>
</tr>
<tr>
<td>OCEA 4220.03</td>
<td>Estuary, Coast and Shelf Dynamics</td>
</tr>
<tr>
<td>OCEA 4230.03</td>
<td>Biology of Phytoplankton (BIOE 4662)</td>
</tr>
<tr>
<td>OCEA 4300.03</td>
<td>Benthic Ecology (BIOE 4666.03)</td>
</tr>
<tr>
<td>OCEA/BIOE/MARI 4355.03</td>
<td>Environmental Impacts in Marine Ecosystems</td>
</tr>
</tbody>
</table>

Table 4. Higher-level Supplementary Courses (minimum of 1.0 credits from the following list)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL/MAR 4000.03</td>
<td>Marine Mammalogy</td>
</tr>
<tr>
<td>BIOL/GEOG 4260.03</td>
<td>Introduction to Landscape Simulation</td>
</tr>
<tr>
<td>ENV 3311.03</td>
<td>Enterprise Sustainability</td>
</tr>
<tr>
<td>ENVGEOG 3400.03</td>
<td>Human Health and Environment</td>
</tr>
<tr>
<td>INTO 401.03</td>
<td>Environmental Conflict and Security</td>
</tr>
<tr>
<td>MGMT 4000.03</td>
<td>Coastal Zone Management</td>
</tr>
<tr>
<td>OCEA/ERTH 4110.03</td>
<td>Geologic Oceanography</td>
</tr>
<tr>
<td>OCEA/4120.03</td>
<td>Physical Oceanography</td>
</tr>
<tr>
<td>OCEA 4140.03</td>
<td>Biological Oceanography (BIOE 4661.03)</td>
</tr>
<tr>
<td>OCEA 4140.03</td>
<td>Fisheries Oceanography (BIOE 4599)</td>
</tr>
<tr>
<td>OCEA 4222.03</td>
<td>Estuary, Coast and Shelf Dynamics</td>
</tr>
<tr>
<td>OCEA 4230.03</td>
<td>Biology of Phytoplankton (BIOE 4662)</td>
</tr>
<tr>
<td>OCEA 4300.03</td>
<td>Benthic Ecology (BIOE 4666.03)</td>
</tr>
<tr>
<td>OCEA/BIOE/MARI 4355.03</td>
<td>Environmental Impacts in Marine Ecosystems</td>
</tr>
</tbody>
</table>

Certificate in IT (Earth Sciences)

To recognize students who have completed courses with a substantial Information Technology component, and to provide these students with a document to present to potential employers who seek graduates with IT skills, the Department of Earth Sciences will award a Certificate in Information Technology to students who meet the following requirements:

- completion of the 20 Credit Major or Honours program in Earth Sciences;
- completion of the following courses, with a minimum grade of B, identified by the Department of Earth Sciences as teaching a set of IT skills particularly relevant to geoscientists:
  - ERTH 2001.03
  - ERTH 3440.03
  - ERTH 3400.03
  - ERTH 3500.03
  - ERTH 3000.03
  - OCEA 2000.03
  - OCEA 3000.03
  - OCEA 4000.03
  - CSCI 3000.03
  - MATH 2260.03

To request complete the registration form found under “IT” at the Faculty of Science URL: http://science.dal.ca/EDUCATIONAL_PROGRAMS/Information_Technolo.php and send your completed form to Science@Dal.Ca or fax to (902) 494-1123.

III. Courses for those whose Major is not Earth Sciences

These courses are specially designed for those who want to know something about the Earth, but whose major field of study at Dalhousie will lie elsewhere, e.g., an economics student concerned with resources, a history student interested in the role played by Canada’s geological framework in the development of transportation, a biology student interested in natural environments on the seafloor.

A. Courses with prerequisites

- ERTH 1900.03: Geography 2 (lab course)
- ERTH 2400.03: Environmental Issues
- ERTH 2420.03: Dinosaurs
- ERTH 2430.03: Introduction to Palaeontology (lab course)
- ERTH 3400.03: Introduction to Hydrogeology
- ERTH 3440.03: Geomorphology

IV. Special Information for Earth Sciences Programs

A. Field Work

Field excursions are part of many courses and are conducted at appropriate times during the session. In addition, some optional field excursions may be held each year. Note that some mandatory field trips may be held on Saturdays or Sundays. Field Schools (ERTH 2000 and ERTH 3000), which are required for most degree programs, are offered for about 10 days in late August, just before the start of the university fall term.
V. Course Descriptions

NOTE: Not all courses are offered every year; please check the current timetable for current course offerings. Note also that some mandatory field trips may be held on Saturdays or Sundays. Check with Instructor.

ERTH 1030.03: Introduction to Physical Geography.
This non-lab science course examines the nature of weather and climate, earth's surface features and processes, and internal processes that contribute to landscape development. An integral component of the course is an exploration of the representation and interpretation of physical geographic data through the examination of a variety of maps.

NOTE: There are no co-requisites for this course, and students may take this course in addition to any other first year Earth Science course.

FORMAT: Lecture-class 3 hours each week and 1 hour tutorial weekly. Some classroom lectures may be recorded.

CROSS-LISTING: GEOG 1030.03

ERTH 1060.03: Earthquakes, Volcanoes and Natural Disasters.
Earthquakes, meteorite impacts, rapid climate change, volcanic eruptions, hurricanes, landslides, solar flares, and floods are natural disasters that affect our economy, public policy, and safety. Where, why and how frequently do natural disasters occur? Are predictions possible? Are media portraits of risk and damage realistic? This course, aimed at the non-specialist, investigates these intriguing questions. Examples of "disaster films", in conjunction with lectures and discussions are used to identify the causes, consequences and sometimes erroneous perceptions of natural hazards. Examples from Atlantic Canada and contemporary disasters are used to assess local risk and real-time events worldwide.

FORMAT: Lecture 3 hours

CROSS-LISTING: GEOG 1060.03

ERTH 1080.03: Geology I.
This course focuses on the solid earth (geosphere) and how it evolved throughout earth's vast history, and continues to evolve today. The processes involved are recorded in the rocks and minerals of our earth, and we explore these natural processes and their effects as a way to understand our earth.

The course meets the needs of students who require a science course with a lab component. It is a non-technical course for all Earth Science majors, and serves as an introduction for all those interested in Earth Science. No previous knowledge of geology is required.

FORMAT: Lecture 3 hours, lab 3 hours

EXCLUSION: Credit can be given for only one of ERTH 1080 1090, 1040 or 1041.

ERTH 1090.03: Geology II.
Earth science is a study of Earth as a system. Geology is explored in greater detail, with an emphasis on earth resources, and geological systems that are connected to human activity. This course provides a strong background to pursue further work in the environmental sciences and is the recommended course for Earth Sciences majors.

FORMAT: Lecture 3 hours, lab 3 hours

PREREQUISITE: ERTH 1080 or permission of the instructor

ERTH 1091.03: Geology I.
ERTH 1091 provides a strong background for students who wish to pursue further work in the environmental sciences and is the recommended course for Earth Sciences majors. This course is a prerequisite for some third-year Earth Science courses.

FORMAT: Lecture 3 hours, lab 3 hours, field trips

PREREQUISITE: ERTH 1001.03, GEOL 1020.03 or ERTH 1050.03

ERTH 1090.03: Geology II.
ERTH 1090 has the same lecture content and lecture time as 1090, but does not have a corresponding lab session.

NOTE: This course is not offered every year. Please consult department.

FORMAT: 3 hours lecture

PREREQUISITE: ERTH 1001.03 or permission of instructor

EXCLUSION: Credit can be given for only one of ERTH 1090 1091, 1020, or 1095.

ERTH 1091.03: Geology II.
ERTH 1091 provides a strong background for students who wish to pursue further work in the environmental sciences and is the recommended course for Earth Sciences majors. This course is a prerequisite for some third-year Earth Science courses.

FORMAT: Lecture 3 hours, lab 3 hours, possible field trip

PREREQUISITE: ERTH 1080 or permission of the instructor

EXCLUSION: Credit will only be given for one of ERTH 1090, 1091, 1020, or 1095.

ERTH 2000.03: Earth Sciences Field School.
This course provides 10 to 11 days of introductory field methods in a broad range of Earth Science disciplines. A wide variety of Earth materials and geological processes are examined in the field through thematic excursions throughout southern Nova Scotia. Field components include laboratory skills taught in soil, sediment and rock classification, note-taking, compass, map-reading and traversing, and geological analysis and report writing. The course is held at the end of summer before regular courses in the Fall term and should be taken by those enrolling in second-year level Earth Sciences courses: ERTH 2001.03, 2002.03, 2100.03, 2200.03.

FORMAT: Day-long (8-10 hours) field trips based out of Halifax for the duration of the field school.

PREREQUISITE: ERTH 1080.03 and one other 1st year ERTH course; ERTH 1090.03, 2100.03, 2200.03 or permission of instructor

ERTH 2001.03: Earth Materials Science I.
Materials from the Earth - including minerals, rocks, and the ore and petroleum resources they contain - form the basis of our industrial society and are vital to the Canadian economy. ERTH 2001/2002 introduce students to the origin, identification, and chemical and physical properties of some important Earth materials. Lectures in the fall term focus on minerals as naturally occurring crystalline materials. Special attention is paid to the fundamental structures and composition of common rock-forming minerals such as quartz, feldspar, and mica, and to minerals with special value in society, including iron, copper, and gemstones. Labs include the identification of minerals in hand sample, elements of crystallography, and an introduction to the use of the petrographic microscope. Students gain practical experience in the use of instrumental techniques such as X-ray diffraction and/or electron microprobe analysis to identify one or more unknown minerals. A weekend field trip may be included. This course is a prerequisite for ERTH 2002 and most third-year Earth Science courses. Students who have not already taken CHEM 1010 for its equivalent are strongly encouraged to take this concurrently.

FORMAT: Lecture 3 hours, lab 3 hours, weekend field trip

PREREQUISITE: ERTH 1080 and one other 1st year ERTH course; 1090 recommended; or SCIE 1520.21, 1530.27, 1510.33, 1515.36, or 1520.27, and CHEM 1011.03/1012.03 or CHEM 1021.03/1022.03; Chemistry majors should consult the department.

ERTH 2002.03: Earth Materials Science II.
This course explores the relationships between minerals and rocks, building on the knowledge of mineral chemistry, crystal structure, and identification techniques gained in ERTH 2001. Lectures cover topics such as simple phase diagrams and their application to mineral chemistry and texture, crystal defects and their role in deformation of minerals and rocks, and radioactivity in minerals and its use in geochronology. The use of mineral assemblages and textures to classify rock types is discussed in class and labs. In the labs, students use the petrographic microscope to look at a variety of igneous, sedimentary, and metamorphic rocks in thin section to identify minerals and diagnostic textures. Students are introduced to the use of reflected light microscopy to identify minerals and to materials with special value to society, including iron, copper, and gemstones. This course is a prerequisite for some third-year Earth Science courses.

FORMAT: Lecture 3 hours, lab 3 hours, field trip

PREREQUISITE: ERTH 2001.03

ERTH 2110.03: Field Methods.
This is intended as an introduction to field techniques useful to the practicing geologist, particularly those concepts essential for the accurate field description and identification of rocks and minerals. Students are expected to attend field trips. Computer techniques and elementary structural geology are also considered.

NOTE: Attendance at the Field School (ERTH 2000.03) is mandatory prior to attendance at this course.

FORMAT: Lecture 3 hours, lab 3 hours, field trips

PREREQUISITE: ERTH 2000.01

ERTH 2200.03: Sediments and Sedimentary Rocks.
The course deals with physical, chemical and biological processes that generate modern sediments, and their conversion to sedimentary rocks through time. Labs provide a practical introduction to sediment analysis and to a range of sedimentary structures and rock types. Fieldwork includes description of beaches and boulder in the Halifax area.

FORMAT: Lecture 3 hours, lab 3 hours

PREREQUISITE: ERTH 1080 and one other 1st year ERTH course; ERTH 1090 recommended; or SCIE 1520.36 and SCIE 1530.27

ERTH 2205.03: Introduction to Paleontology.
This course encompasses an introduction to all the major invertebrate groups that are important in the fossil record. It begins with introduction of the first life forms, basic taxonomy and uses of fossils followed by lectures and laboratories on each major group.

FORMAT: Lecture 3 hours, lab 3 hours, possible field trip

PREREQUISITE: ERTH 2200.03 or permission of instructor

ERTH 2270.03: Introduction to Applied Geophysics.
An introduction to using physical principles to explore the Earth's subsurface, with an emphasis on near-surface applications. Topics include seismic, gravity, magnetics, electrical, and electromagnetic surveying techniques, and their
application in prospecting, hydrotechnology, environmental assessments, and well-logging. The geophysics field school, normally conducted during the last week of April, is an integral part of this course.

FORMAT: Lecture 3 hours, tutorial 2 hours, 3-day field school
PREREQUISITE: First year Mathematics and PHYC 1280.03, 1290.03 or PHYC 1300.03
CROSS-LISTING: PHYC 2270.05

ERTH 2380.03: Geochemistry.
An introduction to the principles of chemistry applied to geologic systems, including an overview of the chemistry of rocks and minerals, isotopes in the geological environment, processes that control the mobility of contaminants in the environment, and the use of geochemical data in solving geologic and environmental problems.
FORMAT: Lecture, 3-week tutorial
PREREQUISITE: ERTH 1080.03, ERTH 2001.03, CHEM 3011/3012 or equivalent, or permission of the instructor

ERTH 2410.03: Environmental Issues in Earth Sciences.
Geology underlies many of the environmental problems facing humanity today. Topics include environmental aspects of energy and mineral resources, geologic hazards, geologic connections to pollution and waste disposal, and the role that water plays in its various guises. Canadian examples are incorporated where appropriate. Approved with Canadian Studies.
NOTE: This course is not offered every year. Please consult department in the spring for further information.
FORMAT: Lecture 3 hours
PREREQUISITE: One of: ERTH 1010, ERTH/3EGG 1050, ERTH/EGG 1060, ENVS 1000, SUST 1001 with a grade of B or above, or DSP with Earth Science.
CROSS-LISTING: CANA 2410, ENVS 2410
EXCLUSION: This class is not available for Earth Science Majors

ERTH 2420.03: Dinosaurs.
Students will consider the origin, evolution and extinction of non-avian dinosaurs. What are dinosaurs? Why were some dinosaurs so big? What did dinosaurs eat? How fast could dinosaurs run? Were dinosaurs good parents? To answer these questions, we will examine the nature of evidence gathered from dinosaur fossils and their surrounding rocks.
FORMAT: Lecture 3 hours
PREREQUISITE: ERTH 1080.03 or any two of ERTH 1010, 1020, 1040, 1041, 1050, 1090, 1099, 1091, or SCIE 1920.25, 1904.27 or 1510.33, or permission of instructor

ERTH 2430.03: Forensic and Medical Geology.
Designed for non-earth sciences majors, this course explores the evolving fields within the realm of forensic. Forensic and medical geology share a common thread in that both depend upon identifying potential geologic and geoscientific sources of evidence, and applying this information to solve a larger problem, either legal or health-related.
NOTE: This course is not offered every year. Please consult department in the spring for further information.
FORMAT: Lecture/tutorial
PREREQUISITE: ERTH 1080 and one other Earth Sciences course or instructor’s permission.

The course provides 10 days of geological mapping in the field and entails (1) identifying, measuring and locating rocks and geological structures, (2) drawing geological logs of map units, and (3) writing a report describing and interpreting the data. Strong mapping skills are crucial to future geologists. This class is held at the end of summer before regular classes in the fall term and is required for BSc Major and Honours programs.
FORMAT: 0C Campus, 10 days
PREREQUISITE: ERTH 2000.015, 2001.03, 2002.03, 2100.03, 2200.03, 2205.03

ERTH 3010.03: Igneous Petrology.
Igneous petrology is the study of the field relations, mineralogy, texture, and geochemistry of volcanic and plutonic rocks. Lectures discuss the classification and graphical representation of igneous rocks; the production, differentiation, and evolution of magmas in different tectonic environments. Practical work consists of laboratory petrographic examination and two field trips.
FORMAT: Lecture 3 hours, lab 3 hours, field trips
PREREQUISITE: ERTH 2001.03, 2002.03 and 2380.05

ERTH 3020.03: Metamorphic Petrology.
Metamorphic petrology is the study of the way in which pre-existing igneous, sedimentary, and metamorphic rocks respond to changes in pressure, temperature, metamorphic fluid and geochemical environment. Metamorphic reactions, deformation and recrystallization, the stability relations of minerals and mineral assemblages under various physical and chemical conditions, and the concept of metamorphic facies are discussed. The relationship of metamorphism to other geological processes is considered. In the labs, microscopic mineralogy and textural are used to decipher the metamorphic history of rocks.
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: ERTH 3010.03

ERTH 3140.03: Structural Geology.
Introduction to the behaviour of rocks during deformation, stressing the geometrical aspects of rock formation. Students learn: (a) geometrical principles to identify, describe, and interpret common types of structures in outcrop and hand sample; (b) to interpret the mechanical properties of rocks based on their microstructure; (c) construction techniques to calculate and interpret stress and strain in deformed rocks.
FORMAT: Lecture 3 hours, lab 3 hours, possible field trips
PREREQUISITE: ERTH 2001.03, ERTH 2100.03, ERTH 2210.03, ERTH 2220.03, ERTH 2230.03

ERTH 3270.03: Solid Earth Geophysics.
An introduction to global geophysics, including the workings of both the Earth’s surface and its deep interior. Starting from plate tectonics, this course explores the Earth as a unified dynamic system. The course includes seismology, earthquakes, mantle convection, crustal accretion, isostasy, the Earth’s magnetic field, radioactivity, and the Earth’s heat budget.
FORMAT: Lecture 3 hours, tutorial 2 hours
PREREQUISITE: ERTH 2270.03
CROSS-LISTING: PHYC 3270.03

ERTH 3302.03: Quaternary Sedimentary Environments.
The course deals with facies models for Quaternary glacial, coastal, deep sea and alluvial sediment. Emphasis is placed on sedimentation processes typical of each depositional setting and the geometry of the resulting deposits. Ancient deposits, including those resulting from glacial events, are examined, and their association with hydrocarbons, coal and uranium are discussed. The labs provide practical experience of techniques used in facies analysis.
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: ERTH 2230.03, ERTH 2230.05

ERTH 3303.03: Stratigraphy.
Stratigraphy is the backbone of the geological sciences; it brings together sedimentology, palaeontology, petrology, and structural geology to reconstruct Earth history. We survey the impact of sea-level change, tectonics and climate on sediment accumulation, with emphasis on sequence stratigraphy. Case studies focus on sedimentary basins across Canada, and practical work includes laboratory and class exercises, as well as field excursions.
FORMAT: Lecture 3 hours, lab 3 hours, field trips
PREREQUISITE: ERTH 2230.03, ERTH 2230.05

ERTH 3400.03: Fundamentals of Hydrogeology.
The availability of clean water is absolutely essential for the development and maintenance of modern societies. This course deals with the mathematical description of groundwater movement, geophysical and geological methods for groundwater exploration, regional occurrence and chemical quality of groundwater, and the effects of waste disposal on chemical quality. Laboratory work stresses familiarity with techniques employed in the assessment and exploration of groundwater resources, as well as the analysis and interpretation of water quality data.
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: ERTH 2001.03, ERTH 2023.03, ERTH 2023.05 or permission of instructor

ERTH 3402.03: Practical Hydrogeology.
This course is designed to build on ERTH 3400.03 to familiarize the student with the practical aspects of groundwater resource development and monitoring system installation, including drilling methods, well design, well hydraulics and aquifer analysis, slug testing, data interpretation, and introduction to groundwater modelling. Actual case history data and problem assignments with practical applications are emphasized.
FORMAT: Lecture 3 hours, lab/tutorial
PREREQUISITE: ERTH 3400.03

498 Earth Sciences
ERTH 3420.03: Geochemistry of Aquatic Environments.

Given the abundance of water at the earth’s surface and the wide use both humans and other organisms make of surface waters, it becomes imperative for environmentally-oriented scientists to understand the chemistry of natural bodies of water. In particular, we need to comprehend the processes that lead to the observed composition of groundwaters, lakes, rivers, and oceans. We also need to be aware of how human activities can alter these natural systems. Water is also an agent for geologic and environmental change, both on short and long time-scales.

Earth and environmental scientists should have an appreciation of these processes (sources, sinks and transport mechanisms) and the resulting geochemical cycles. This course is an introduction to the governing principles and processes of aquatic geochemistry. Specific topics will include chemical composition of natural waters, kinetics (mechanisms & rates) of geochemical reactions, the hydrologic cycle, the dissolved carbonate system and pH controls, rainfall reactions and the influence of life, rainer and acid rain, weathering and the formation of soils, mineral-solution equilibria, controls on the composition of rivers, lakes and oceans, sediments and their after-burial changes, and the global cycles of carbon, nitrogen, and sulfur. Students will be taught to approach problems quantitatively through the principles of mass action (Equilibrium and activity diagrams) and of mass balance (box models and conservation equations).

FORMAT: Lecture 3 hours
PREREQUISITE: CHEM 1011.03/1012.03 or equivalent and ERTH 1080/1090 or ERTH 1010.01/02
CROSS-LISTING: OCEA 3420.03

ERTH 3440.03: Geomorphology.

Geomorphology is the quantitative study of Earth’s surface processes and landforms with applications to geomorphology, civil engineering, hydrogeology, and environmental management. We investigate the processes of landscape instability, weathering and soils, sediment production, wind-driven and coastal environments, tectonic landforms, and river, glacial and periglacial processes.

FORMAT: Lecture 3 hours, lab 3 hours including mandatory field trips
PREREQUISITE: ERTH 1080 and one other 1st year ERTH course: ERTH 1090 recommended; or SCIE 1522.21, 1504.27 or 1510.33 or permission of instructor AND completion or concurrent enrollment of a 1000-level mathematics class, a 1000-level physics class and a 1000-level chemistry class.

CROSS-LISTING: GEOG 3440.03

ERTH 3500.03: Geoscience Information Management.

Geographic Information Systems (GIS) is a tool for the management of geospatial data, and have become indispensable for disciplines whose location of objects and patterns of processes is important. GIS serves a significant role in a wide range of applications, from modeling, to analysis and prediction, to decision making. The course is aimed at a broad base of potential users and draws on the concepts of GIS in global change, mineral exploration, preservation of biodiversity, coastal zone management, resource depletion, and many other present and future environmental issues. The course material will be of interest to those studying geoscience, environmental science, ecology, marine biology, oceanography, epidemiology, urban and rural planning, civil engineering, and any other field involving spatial data. Laboratory exercises emphasize the integration of vector and raster GIS, and the integration of databases and GIS (global positioning systems) data into GIS. Exercises draw on the diversity of GIS applications in a number of application areas.

FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: Two years of university study or equivalent or instructor’s permission

CROSS-LISTING: ERTH 5000, GEOG 3500, ENV 3500
EXCLUSION: Credit will only be given for one of ERTH 3500.03, ERTH 5600.03; GEOG 3500.03, GEOG 3500.03 or ENV 3500.03

ERTH 3601.03: Global Biogeochemical Cycles.

This course currently deals with environmental challenges at the global scale that are expected to worsen in the 21st century, including a global water crisis, climate change and pollution of our waters and atmosphere; this course examines the science behind these environmental issues from the multidisciplinary framework of global biogeochemical cycling. With the global scale as the focus, this course will cover the many dynamical fields that are encompassed by the broad reach of biogeochemistry. You will learn about the processes that drive the movement of carbon, nitrogen, phosphorus and sulfur in the earth system, and the residence of these elements in the atmosphere, soils, lithosphere, oceans and freshwater/terrestrial biota. The course is quantitative and analytical exercises you calculate and compare the effects of industrial-emissions, land clearing, agriculture, and rising population on the processes driving the Earth’s chemical cycles. Weekly journal readings for discussion in laboratory group cover the latest developments in this exciting and rapidly changing field. This course provides an excellent framework for those interested in the science of global change.

PREREQUISITE: An introductory Chemistry class and one of ENVS 1000.06, MATH 1000.06, or MATH 1000.06, or MATH 1000.05 and one of OCEA 2001.03 and OCEA 2002.03.

CROSS-LISTING: ENV 3601.03

ERTH 3701.03: Fundamentals of Hydrology.

This course is an introduction to hydrology, emphasizing surface processes and water resources. In this course we learn about both the pure and applied uses of hydrology. The course is quantitative and introduces hydrologic processes in the atmospheric, on the land surface, in groundwater and in surface channels.

FORMAT: Lecture 3 hours, tutorial 1.5 hours
PREREQUISITE: MATH 1000.03 or MATH 1214.03 and one of ENVS 1000.06, SUST 1000.06, ERTH 1080.03, or ERTH 1090.05 or one of SSCI 1515X.21, SSCI 1530.27, SCIE 1504X.Y.33 and completion of 2 years of arts under-graduate degree. PHYS 1200 and PHYS 1290.03 or (PHYS 1300X.01 or PHYS 1300X.03) are recommended.

CROSS-LISTING: ENV 3701.03

ERTH 4001.03: Sponsored Geologic Experience.

This Field Trips & Tours Laboratory Seminar introduces students to some of the following: Practical exploration techniques, field and laboratory skills, familiarization with deposit models, related economic and environmental geology, and the business side of Earth-science industries.

FORMAT: At least 10 days in the field. Student presents a report (written and oral presentation) after returning to Dublin.

ERTH 4002.03: Advanced Field School.

This course is aimed at a broad base of potential users and draws on the diversity of GIS applications, from modeling, to analysis and predictions, to decision making. The course is aimed at a broad base of potential users and draws on the principles of GIS in global change, mineral exploration, preservation of biodiversity, coastal zone management, resource depletion, and many other present and future environmental issues. The course material will be of interest to those studying geoscience, environmental science, ecology, marine biology, oceanography, epidemiology, urban and rural planning, civil engineering, and any other field involving spatial data. Laboratory exercises emphasize the integration of vector and raster GIS, and the integration of databases and GIS (global positioning systems) data into GIS. Exercises draw on the diversity of GIS applications in a number of application areas.

FORMAT: Off campus, four weeks
PREREQUISITE: ERTH 1080.03, ERTH 1090.03 or permission from instructor

ERTH 4100X/Y.06: Research Project.

This course allows students who are not in an Honours program to do a research project. See course description for ERTH 4200X/Y.06.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture 3 hours

ERTH 4110.03: Geological Oceanography.

This course is intended to give a broad survey of topics in marine geology and geophysics. The course content covers recent methods and observations with quantitative applications to an understanding of geophysical and geological processes. Some topics covered are: plate tectonics and seismic, heat flow, gravity, and magnetic methods, patterns and processes of sediment transport and deposition. Note: some laboratory exercises augment the lectures, including a field cruise to local beaches. Third year and honors undergraduates will be admitted by consent of the instructor. No previous background in Geology or Geophysics is required.

FORMAT: Lecture 3 hours
CROSS-LISTING: OCEA 5110.03, OCEA 4110.03

ERTH 4131.03: Advanced Petroleum Geoscience.

This is an advanced course to provide graduate students with an understanding of field observations and interpretations for basin/prospect evaluation. Students work in a team interpreting industry data, including well log and reflection seismic, in a collaborative environment. The team submits its findings and recommendations in written and oral presentations.

FORMAT: Lecture/group research project
PREREQUISITE: ERTH 3140.03, or permission of instructor
CROSS-LISTING: ERTH 5131.03
ERTH 4141.03: Applied Geology, Mineralogy and Geochemistry.

This course is an introduction to various concepts and techniques used by geologists in the search for and evaluation of mineral concentrations, in mining and metallurgy, as well as in environmental aspects of these activities. The course provides an introduction to tectonic processes and the ways in which these processes create and modify the Earth's crust. We cover the fundamental geological, geophysical, and geochemical controls that operate today, including plate tectonics, and the ways in which these might have differed in the geological past. The tectonic evolution of specific ore deposits is discussed, including both modern and ancient examples from Canada and other parts of the world.

FORMA T: Lecture 3 hours
PREREQUISITE: ERTH 2270.03, 3140.03
CROSS-LISTING: ERTH 5400.03

ERTH 4440.03: Geomorphology and Landscape Evolution.

This course deals with selected topics in geomorphology and is chosen to reflect current topics of interest in the disciplines and/or specific interests of participants. The focus is on the interaction of geomorphological processes with the environment and the ways in which they are related to other factors such as climate and vegetation change, and rock character. The concepts of equilibria, stability, and environmental sustainability are examined. Examples of topics that might be covered include: environmentally sensitive elements and minerals, geologic hazards, water, soil, mineral and energy issues, use of isotopes as tracers, as well as waste management, rehabilitation, and the urban environment.

PREREQUISITE: ERTH 3020.03, ERTH 3140.03 (or equivalent) 
NOTE: This course is not offered every year. Please consult department in the spring for further information.

FORMA T: Lecture 3 hours

ERTH 4450.03: Introduction to Landscape Simulation.

Examine different approaches to numerical modeling of earth-surface processes such as erosion and landslides, melting permafrost, and braided rivers. Using class and/or individual projects as examples, the selection of variables, sensitivity testing, and methods for testing models against nature are discussed. We use Matlab, programming experience is very useful but not essential.

FORMA T: Lecture 3 hours

PREREQUISITE: ERTH 3440.03, MATH 1001 or 1400, PSYC 1201/3.

ERTH 4460.03: Geology and Landscape Evolution.

This course deals with advanced-level aspects of earth-surface processes and the ways in which these processes create and modify the Earth’s crust. The course provides an introduction to tectonic processes and the ways in which these processes create and modify the Earth’s crust. We cover the fundamental geological, geophysical, and geochemical controls that operate today, including plate tectonics, and the ways in which these might have differed in the geological past. The tectonic evolution of specific ore deposits is discussed, including both modern and ancient examples from Canada and other parts of the world.

FORMA T: Lecture 3 hours

PREREQUISITE: ERTH 2270.03, 3140.03
CROSS-LISTING: ERTH 5500.03

ERTH 4480.03: Environmental Geoscience.

Environmental geoscience integrates various aspects of earth sciences to critically examine the interaction between humans and the geologic environment. Topics include environmentally sensitive elements and minerals, geologic hazards, water, soil, mineral and energy issues, use of isotopes as tracers, as well as waste management, rehabilitation, and the urban environment.

PREREQUISITE: ERTH 3020.03, ERTH 3140.03 (or equivalent) 
NOTE: This course is not offered every year. Please consult department in the spring for further information.

FORMA T: Lecture 3 hours

ERTH 4500.03: Applied Geology, Mineralogy and Geochemistry.

This course provides an overview of metamorphic processes and their causes, with emphasis on the role of metamorphic processes in the formation of ore deposits. The course includes studies of metamorphic rocks and their mineralogy, and the processes that create and modify the Earth’s crust. We cover the fundamental geological, geophysical, and geochemical controls that operate today, including plate tectonics, and the ways in which these might have differed in the geological past. The tectonic evolution of specific ore deposits is discussed, including both modern and ancient examples from Canada and other parts of the world.

FORMA T: Lecture 3 hours

PREREQUISITE: ERTH 2270.03, 3140.03
CROSS-LISTING: ERTH 5500.03

ERTH 4510.03: Mineral Deposits.

The course provides an introduction to the geology of mineral deposits and is aimed at students interested in the exploration and exploitation of mineral resources. The course integrates many Earth Science disciplines. Laboratory work introduces students to the study of reflected light microscopy. This course is not offered every year. Please consult department in the spring for further information.

FORMA T: Lecture 3 hours

ERTH 4515.03: Petroleum Geology - Field Methods and Economic Evaluation.

This course introduces students to petroleum geology and petroleum systems with a focus on basin analysis, source rock evaluation, and well log analysis. The course is offered as number warrant (4 students minimum). It is suitable for students who are doing honours or graduate work in the general areas of petroleum and/or structural geology and/or tectonics.

NOTE: This course is not offered every year. Please consult department in the spring for further information.

FORMA T: Lecture 3 hours, Lab 3 hours

ERTH 4517.3: Petroleum Geoscience Field Methods.

This course provides an advanced-level overview of petroleum geology and petroleum systems, with a focus on basin analysis, source rock evaluation, and well log analysis in addition to other topics.

PREREQUISITE: ERTH 3140.03
CROSS-LISTING: ERTH 5517.03

ERTH 4520.06: Honours Thesis.

This course provides an introduction to petroleum geology, basin analysis, source rock evaluation, and well log analysis. The course is offered as number warrant (4 students minimum). It is suitable for students who are doing honours or graduate work in the general areas of petroleum and/or structural geology and/or tectonics.

NOTE: This course is not offered every year. Please consult department in the spring for further information.

FORMA T: Lecture 3 hours, Lab 3 hours

ERTH 4525.03: Advanced Metamorphic Petrology.

This course deals with selected topics in metamorphism and microtectonics, chosen to reflect current topics of interest in the disciplines and/or specific interests of participants. The focus is on the interaction of metamorphic processes with the environment and the ways in which they are related to other factors such as climate and vegetation change, and rock character. The concepts of equilibria, stability, and environmental sustainability are examined. Examples of topics that might be covered include: environmentally sensitive elements and minerals, geologic hazards, water, soil, mineral and energy issues, use of isotopes as tracers, as well as waste management, rehabilitation, and the urban environment.

PREREQUISITE: ERTH 3300.03, 3140.03
CROSS-LISTING: ERTH 5525.03

ERTH 4530.03: Tectonics.

This is a required course for Earth Sciences honours students. It is intended to synthesize the various aspects of geology covered in the third year core program.
ERTH 4470.3: Introduction to Seismic Imaging.
This course teaches the basic techniques of the reflection seismic method for imaging of earth structures such as those used in hydrocarbon exploration. Lectures introduce concepts and techniques that are applied in computer lab to the processing of a multi-channel seismic dataset. Concepts covered include: source and receiver geometry, digital filtering, deconvolution, velocity analysis, stacking, and migration.

FORMAT: Lecture/lab
PREREQUISITE: ERTH 3270.03 or consent of instructor
CROSS-LISTING: ERTH 5470.03, OCEA 4470.03, PHYC 4470.03, PHYC 5470.03

ERTH 4480.03: Advanced Seismic Imaging.
This course teaches more advanced techniques of seismic imaging of earth structures. Lectures introduce techniques that will be applied in the computer lab to the processing of multi-channel reflection and wide-angle refraction seismic datasets. Concepts covered include: multiple removal, pre-stack migration in time and depth, amplitude analysis, velocity modeling and inversion.

NOTE: This course is not offered every year. Please consult department in the spring for further information.

FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: ERTH 4470.03 or consent of instructor
CROSS-LISTING: ERTH 5480.03, OCEA 4480.03, PHYC 4480.03, PHYC 5480.03

ERTH 4502.03: Micropaleontology and Global Change.
This course provides a systematic study of major groups of microfossils (principally foraminifera, ostracoda and calcareous nanoplankton). Particular emphasis is placed on the distribution and ecology of recent microfossils, and on laboratory techniques for sampling and studying them. Quaternary paleo-oceanography and faunal distribution is examined based on knowledge of the tolerances of the living organisms.

NOTE: This course is not offered every year. Please consult department in the spring for further information.

FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: ERTH 3302.03/3303.03
CROSS-LISTING: ERTH 5502.03, OCEA 4115.03

ERTH 4510.03/4511.03: Directed Reading.
This course is intended to permit further study of a specific topic of interest, or to correct a deficiency in a student’s program. The course is supervised by a regular faculty member and the course content and marking scheme must be submitted to and approved by the chairperson in the first week of classes. Further guidelines for directed reading courses are available from the undergraduate advisor or the Earth Sciences office.

FORMAT: As required
PREREQUISITE: Permission of Department

ERTH 4520.03: GIS Applications to Environmental and Geological Sciences.
Geographic information systems (GIS) provide a rich set of new tools to the geologist and environmental scientist, not only to solve conventional problems, but also to explore questions not readily answered by other means. This course builds on the fundamentals of GIS taught in ERTH 3500.03 to explore analytical tools that aid in decision-making processes encountered in mineral exploration, hydrogeology, site selection, environmental assessment, and global change analysis. The course concentrates on case studies and problem solving, including those requiring multi-criteria and multi-objective decision making processes.

NOTE: This course is not offered every year. Please consult department in the spring for further information.

FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: GEOG 3500.03, ENVS 3500, ERTH 3500.03 or ERTH 5600, or SCIE 3600.03
CROSS-LISTING: GEOG 4520.03, ERTH 5520.03

ERTH 4530.03: Environmental Remote Sensing.
The goal of this course is to introduce students to the role of remote sensing as a technique provide environmental and geologic information. Particular emphasis will be placed on examining the potential and limitations of remote sensing methods and data in this context. The lectures discuss the fundamentals of remote sensing with an emphasis on multi-spectral satellite systems. In the lab, students use computerized techniques of digital image enhancement and thematic information extraction to process images derived from optical, radar, and hyperspectral remote-sensing systems. The integration of remote-sensing information with GIS (Geographic Information Systems) is stressed in both the labs and lectures.

NOTE: This course is not offered every year. Please consult department in the spring for further information.

FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: GEOG 3500.03, ENVS 3500, ERTH 3500.03, ERTH 5600, or SCIE 3600.03
CROSS-LISTING: GEOG 4530.03, ERTH 5530.03

VI. Co-op Workterms
Each work-term is a prerequisite of the succeeding work-term.

ERTH 8891.00: Work-Term I.
ERTH 8892.00: Co-op Work-Term II.
ERTH 8893.00: Wo-op Work-Term III.
I. Introduction
Economics is a social science—a science because it involves a rigorous intellectual effort to derive logical conclusions from basic facts and propositions; a social science because it has human beings and their welfare as its ultimate concern. The basic facts of Economics cannot be knowable and measurable with the same precision as those of the physical sciences—human society and its motivations are far too complex to permit this—but none of the sciences surpasses economics in its relevance to our needs, problems and goals.

Economics analyzes the equity, efficiency, and sustainability of human behavior in the production, distribution, and consumption of commodities. Economics is not an easy science; indeed, it is one of the most complex, difficult (and fascinating) areas of study when you pursue it beyond its elementary levels, but some basic knowledge of economics is essential for any educated person. A more extensive knowledge of the subject is an invaluable complement to other fields of specialization such as law, commerce, politics and other studies in social sciences or humanities, and a specialization in the field can lead to a variety of interesting career opportunities.

II. Degree Programs
The department offers BA and BSc programs, described below. A student may graduate with either a BA or a BSc degree, but not both. In all programs, the student must ensure that the courses selected satisfy the overall faculty requirements for the relevant general degree (BA or BSc).

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar.

A. General Principles
Two principles have particular weight: (a) students should strike a balance between breadth of coverage among disciplines and depth of specialization in economics; (b) students taking economics as a minor or as a component of another specialization should be allowed a reasonable degree of flexibility in their choice of economics courses.

B. BSc (20 credit) Honours Degree in Economics

Departmental Requirements

1800 level
- ECON 2201.03
- ECON 2202.03
- ECON 2339.03
- ECON 3339.03
- ECON 3550.03
- One half credit in ECON 3310.03 or ECON 3349.03 or ECON 2233.03 or 2239.03

4800 level
- ECON 4200.06
- ECON 4420.03
- ECON 4421.03
- 3.5 other Economics credits at or above the 2000 level for a minimum of nine advanced Economics credits.
Other required courses
- MATH 1000.03
- MATH 1010.03
- MATH/STAT 1060.03
- MATH 2030.03
- MATH/STAT 2080.03 (ECON 2280.03)
- An Honours Thesis is also required

Admission to and graduation with Honours requires a B+ average (3.3) in Economics courses at the 2000 level and above, with no grade lower than a C.

Departmental Requirements

C. BA (20 credit) Honours Degree in Economics

Departmental Requirements

1800 level
- ECON 1010.03
- ECON 1020.03

2000 level
- ECON 2200.03
- ECON 2290.03

3000 level
- ECON 3338.03
- ECON 3339.03
- ECON 3700.03
- One half credit in ECON 3310.03 or ECON 3349.03 or ECON 2233.03 or ECON 2239.03

4000 level
- ECON 4200.06
- ECON 4420.06
- ECON 4421.06
- 3.5 other Economics credits at or above the 2000 level for a minimum of nine advanced Economics credits

Other required courses
- MATH 1000.03
- MATH 1010.03
- MATH/STAT 1060.03
- MATH 2030.03
- MATH/STAT 2080.03 (ECON 2280.03)
- An Honours Thesis is also required

Admission to and graduation with Honours requires a B+ average (3.3) in Economics courses at the 2000 level and above, with no grade lower than a C.

For current deadlines, requirements, and application forms, see the department’s website (http://economics.dal.ca)

D. Combined Honours

Combined honours programs, BA or BSc, may be arranged with other departments such as Biology, Earth Sciences, History, Journalism, Mathematics, Political Science, Statistics, or Sociology. For combined honours programs with Economics, students must also consult the other departments concerned.

Students doing Combined Honours have the same Economics requirements as students doing Single Honours, but only write an Honours Thesis in one of the two subjects.

E. BSc (20 credit) Major in Economics

Departmental Requirements

1800 level
- ECON 1010.03
- ECON 1020.03

2000 level
- ECON 2200.03
- ECON 2290.03
- Three other advanced credits at or above the 2000 level

3000 level
- ECON 3338.03
- 2.5 other Economics credits at or above the 3000 level, for a minimum of seven advanced credits in Economics

Other required courses
- MATH 1000.03
- MATH 1010.03
- MATH/STAT 1060.03
- MATH 2030.03
- MATH/STAT 2080.03 (ECON 2280.03)

A student who wants the option of converting a Major to an Honours degree should select courses in accordance with the list of honours core courses given above and should consult regulations 11.4 and 22. Besides additional core courses, the Honours program requires an honours thesis and a higher academic standing than the Major. An Honours program can be converted to a Major at the student’s discretion. The Major, however, allows a maximum of only 10 credits in economics while the Honours program allows a maximum of 11.

F. BA (20 credit) Major in Economics

Departmental Requirements

1800 level
- ECON 1010.03
- ECON 1020.03

2000 level
- ECON 2200.03
- ECON 2290.03
- Two other credits in Economics at or above the 2000 level

3000 level
- Three credits in Economics at or above the 3000 level, for a minimum of six advanced credits in Economics

Other required courses
- MATH 1000.03
- STAT 1060.03

While the total number of credits required for the Major is the same as for an Honours degree, the honours program in economics requires an honours thesis and includes a larger core of courses in economics. In addition, the Honours program requires a higher academic standing than does the Major. However, the Major provides a comprehensive program not available with the 15-credit minor. Major students are strongly encouraged to consult with members of the department to ensure an integrated and coherent program.

A student who wants the option of converting a Major to an Honours degree should select courses in accordance with the list of honours core courses and should consult regulations 11.4 and 22. An Honours program can be converted to a Major at the student’s discretion. The Major allows a maximum of nine or 10 credits in economics while the honours program allows a maximum of 11.

Combined programs may also be arranged with economics as the major or minor subject in association with other fields such as political science, sociology, history, earth sciences, biology, mathematics, statistics - and possibly others.

G. BSc or BA (20 credit) Double Major

Economics is available as part of a BSc or BA double major program. All of the requirements for a single major apply. The student must complete a minimum of 10 advanced credits in the two subjects together.

H. Co-op Education in Economics

Co-operative Education in Science (Science Co-op) combines academic study with paid career-related work experience. The program integrates eight academic terms with three work terms. On completion of a Science Co-op program, a student graduates with a Bachelor of Science Co-op. Science Co-op enables students to apply their knowledge directly while providing them with work experience that assists in making educated career choices. Students who apply to join Science Co-op by August 1st of their second year of study. If accepted into the Science Co-op program, students are required to register for, and attend, the Science Co-op Seminar Series (SCS 2800.06) in the fall term of the year they join.
The co-operative education program begins in the second year of study, and a GPA of 3.0 is required for admission. In addition to completing three to four work terms, a student must fulfill the requirements for either a 20-Credit BSc Major program while maintaining at least a B average, or a 20-Credit BSc Honours Program. Departmental approval and Science Co-op Program approval is required to obtain admission to the Co-operative Education Program in Economics. Interested students should inquire about the program before beginning their second year of study.

See the “Co-operative Education in Science” section of this calendar, or http://www.science.dal.ca, for information on Science Co-op such as Science Co-op requirements, eligibility, how to apply, deadlines and other related information.

I. BSc or BA (15 credit) with Minor in Economics

A BSc or BA (15 credit) degree program with a Minor in Economics is available to students in the Faculty of Science. Departmental Requirements

- ECON 1101.03/1102.03
- A minimum of 18 credit hours in Economics (ECON) courses at the 2000 level or higher.

J. Minor in Economics

Students in other 20-credit degree programs may choose to include a Minor in Economics in their program. Requirements are outlined in the College of Arts and Science Minors section of this Calendar starting on page 129.

K. Minors available to students in Economics

Minor programs allow students to develop subject specialties in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year major or concentrated honours program (including co-op programs). Students in a 20-credit BSc or BA program in Economics may choose to include a Minor selected from the list of approved Minors beginning on page 152 in this Calendar. Note that courses counted toward your Major or Honours program cannot be used to fulfill the requirements of a Minor program.

L. Interdisciplinary Opportunities

BSc/Engineering or BA/Engineering Concurrent Programs

Students will normally complete the requirements for a 15 Credit BSc or 15 Credit BA in the first two years of engineering studies leading to the Diploma in Engineering. The concurrent program can be completed in three years. Details are provided in the College of Arts and Science Degree Requirements starting on page 125 of the calendar.

Diplomas, Certificates, and Language Proficiency Certificates

In combination with a BA or BSc there are certificates or diplomas that can be obtained to emphasize areas of proficiency. For a complete list and details refer to the College of Arts and Science Degree Requirements starting on page 125 of the calendar.

M. Graduate Studies

The Department offers a graduate program leading to the MA, MDE and PhD degrees. Details of these programs, including a list of graduate courses, are given in the Calendar of the Faculty of Graduate Studies. Senior undergraduates may be admitted to some graduate courses at the discretion of the instructors concerned.

III. Course Descriptions

Not all courses are offered on a regular basis. Please consult the department for details. Recent course outlines are available on the department’s website (http://economics.dal.ca).

All Economics courses, unless stated otherwise, have a minimum grade requirement of C for their prerequisite courses.

ECO1101.03: Principles of Microeconomics

How do you decide whether or not to go to university? Why does the price of pizza change so much less than the price of oil? What will better help prevent climate change: a carbon tax, or a cap-and-trade system? Microeconomic analysis, which considers the behavior of individuals and businesses, can answer questions like these.

FORMAT: Lecture 5 hours

ECO1102.03: Principles of Macroeconomics

Why are some countries rich and others poor? Why do high oil prices cause the home to rise, how are Ontario manufacturers affected? Why were mortgage interest rates above 20% in 1981 but below 3% in 2017? Macroeconomic analysis, which considers the behavior of the entire economy, can answer questions like these.

NOTE: ECON 1101.03 and ECON 1102.03 (together) satisfy the Principles of Economics requirement for Economics majors and for Bachelor of Commerce and Bachelor of Management students.

FORMAT: Lecture 5 hours

ECO2200.03: Intermediate Microeconomics

This course covers consumer behavior, the theory of the firm, factor markets, and general equilibrium welfare analysis. The course serves as the microeconomic prerequisite for higher-level courses in economics.

FORMAT: Lecture 3 hours

PREREQUISITE: ECON 1101.03

ECO2201.03: Intermediate Macroeconomics

An extension of macroeconomic theory of income, unemployment, the exchange rate, inflation and financial markets that satisfies the minimum macroeconomic theory requirement for majors in economics. Serves as the macroeconomic prerequisite for higher-level courses in economics.

FORMAT: Lecture 3 hours

PREREQUISITE: ECON 1102.03

ECO2213.03: Emerging Giants: The Economic Rise of China and India

This course examines the economic history, current issues, and future trends of China and India, answering such questions as: What explains China’s and India’s growth? How is climate change affected by this growth? How are global labour markets affected? Most growth lead to rising inequality? Is democracy required for development?

FORMAT: Lecture 5 hours

PREREQUISITE: ECON 1101.03, ECON 1102.03

CROSS-LISTING: CHIN 2290.03

ECO2216.03: Economics of Global Warming

This course uses economic principles to investigate such questions as: What are the benefits and costs of various time paths for suffering emissions? How do we value the well-being of future generations? How do we balance the costs of global warming with environmental sustainability? What policies can align incentives with environmental sustainability?

FORMAT: Lecture 3 hours

PREREQUISITE: ECON 1101.03

EXCLUSION: ECON2000.06, PHYC2090.06

ECO2217.03: Women and the Economy

This course uses economic principles to investigate such questions as: What explains the benefits and costs of various time paths for suffering emissions? How do we value the well-being of future generations? How do we balance the costs of global warming with environmental sustainability? What policies can align incentives with environmental sustainability?

FORMAT: Lecture 3 hours

PREREQUISITE: ECON 1101.03

EXCLUSION: ECON2000.06, PHYC2090.06

ECO2218.03: The Canadian Economy in the New Millennium: Economic Policy Debates

Canada’s economy today faces many problems: unemployment, productivity, income distribution, environmental protection, trade relations, federal-provincial fiscal relations, maintenance of social programs, etc. What are the most important economic policy issues that Canada now faces? What is the appropriate policy role for government?

NOTE: Approved with Canadian Studies.

FORMAT: Lecture 3 hours

PREREQUISITE: ECON 1101.03, ECON 1102.03

CROSS-LISTING: CANA 2218.03

504 Economics
ECON 2219.03: Euros and Cents: From Common Market to European Union.
The European Union is a grand experiment to unite countries in a single market. The surprise evolution from customs union to common market to economic and monetary union with a single currency, the Euro, is examined and analyzed. Learn more about the economic integration that is unparalleled in history.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 1101.03, ECON 1102.03 or permission of instructor
ECON 2220.03: Microeconomic Theory.
This course focuses on the economic behavior of individual decision-makers, such as a consumer, a worker or a firm. Emphasis is on theoretical ideas, while applications of these ideas are also considered. Of particular interest is those planning to major or to do business in economics.
NOTE: Students may not receive credit for both 2200.03 and 2220.03.
FORMAT: Lecture 3 hours
PREREQUISITE: Econ 1101.03, MATH 1000.03 (or equivalent)
ECON 2231.03: Health Economics.
This course introduces students to the role of economics in health care, health, and health policy. It comprises a survey of major topics in health economics and an introduction to the ongoing debates over health care policy. Topics include the economic determinants of health, the market, the market for medical care, the market for health insurance, the role of government in health care, and health care reforms.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 1101.03, ECON 1102.03
ECON 2333.03: Canadian Economic History.
An examination of the economic history of Canada from the time of Confederation to WWII. Major topics explored include: the economic reasons for Confederation, the building of the CPR, the Wheat Boom, foreign trade and investment, and the role of governmental policy. NOTE: Approved with Canadian Studies. The student is recommended to have some knowledge of history prior to taking this course.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 1101.03, ECON 1102.03
ECON 2339.03: The European Economy Since 1900.
This course applies economic theories to interpret quantitative economic changes in major European countries during the turbulent 20th century. Issues addressed include sources of growth and unevenly improved welfare, war, inflation, depression, 'lost' economy: Communism's nature, success, and ultimate failure; reparations and the transition; and the integration.
NOTE: Approved with Canadian Studies
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 1101.03, ECON 1102.03
ECON 2200.03: Statistics I.
See course description for MATH 2090.03, in Mathematics section of this calendar.
PREREQUISITE: MATH 1000.03 or MATH 1215.03 and either MATH 1010.03 or 2010.03 or DEIS
CROSS-LISTING: MATH 2090.03, STAT 2090.03
EXCLUSION: ENOM 2002.03
ECON 2280.03: Statistics II.
See course description for MATH 2090.03, in Mathematics section of this calendar.
PREREQUISITE: STAT 2090.03 or Econ 1101.03
CROSS-LISTING: MATH 2880.03, STAT 2090.03
ECON 2334.03: Globalization and Economic Development: Current Debates.
Economists have debated whether the task of development should be entrusted largely to market forces, or whether there was role for the state in directing a nation's economic affairs. These debates over development continue. We assess critiques of the economic analysis of development. Students will be encouraged to debate these issues and come to their own conclusions.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 1101.03, ECON 1102.03
ECON 2336.03: Regional Development.
Why are some countries or regions poor? Why have the relative positions of different countries and regions shifted over the last several decades? Economic development issues, policies, and theories are analyzed to answer these questions.
FORMAT: Lecture/seminar 3 hours
PREREQUISITE: ECON 1101.03, ECON 1102.03
EXCLUSION: GEOG 2336.03
ECON 2400.03: Economics of Retirement.
This course aims to explain how households plan for retirement and manage their finances once retired. It applies a modified version of standard economic theory of the life cycle to the adequacy of household discussion-making. It appraises defined benefit and defined contribution pensions, and proposes ways of mitigating their shortcomings.
FORMAT: Lecture
PREREQUISITE: ECON 1101.03 and ECON 1102.03
ECON 2850.06: The Science and Economics of Climate Change.
This course examines how climate change will impact the environment and human activities, and how to formulate and implement economically realistic solutions. It integrates the physical and biological science with economics in order to analyze the response options as we move towards a carbon-neutral society.
FORMAT: Lecture
PREREQUISITE: PHYS 2850.06
ECON 3111.03: Writing in Economics.
This course provides instruction in principles and practice of good writing about economics. Students read and examine writing samples and practice writing for various venues (such as government, firms, and news media) in various formats (such as opinion editorials, government policy papers, economics blogs, and journal articles).
PREREQUISITE: ECON 2200.03, ECON 2201.03 and a Dalhousie writing course
ECON 3310.03: Economic Growth in Historical Perspective.
This course examines the sources of long-run economic growth and development in a historical perspective. Topics covered include: invention, innovation, culture, legal institutions governing access to resources, democracy, fertility, mortality, and alternative modes of production.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or ECON 2220.03, and ECON 2201.03
ECON 3315.03: Labour Economics.
This course considers the theories, evidence and policy of labour economics from a Canadian perspective. Topics include: How does EI affect the Canadian labour market? Do minimum wages reduce employment? What is economic discrimination and does it exist in Canada? How well do immigrants fare in the Canadian labour market? Does employer-mandated retirement reduce productivity?
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or ECON 2220.03, and ECON 2201.03
ECON 3317.03: Poverty and Inequality.
Why are some people poor, while others are rich? Why do some nations have more poverty or inequality than others? What can or should be done? This course examines the extent of poverty and inequality in contemporary societies, and the theories underlying alternative measures and explanations.
NOTE: Approved with Canadian Studies
FORMAT: Lecture 3 hours
ECON 3319.03: Industrial Organization.
The course provides an overview of the organization of production. Market structure, firm conduct, and performance affect each other in complex ways, the degree of horizontal and vertical integration affects the ability to set prices, for example. Governments regulate firms in order to reduce socially harmful anticompetitive behavior.
NOTE: Approved with Canadian Studies.
ECON 3263.03: Money and Banking.
This course concerns the nature and operation of the financial system, with particular reference to Canadian experience. It treats financial instruments (including money) and institutions and the social control of the supply of money and credit.
NOTE: Approved with Canadian Studies.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2201.03

ECON 3303.03: International Trade.
This course examines the theory and empirical evidence of international trade, including historical trade theory, recent theories, and evidence regarding these theories. The course investigates factors which influence trade flows, and trade policies in both industrial and developing countries, and the institutions that have developed to regulate these policies.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or ECON 2203.03

ECON 3311.03: International Finance.
This course examines the determination of exchange rates, international capital flows, and risk; the effectiveness of fiscal and monetary policy in an open economy; modern international policy coordination; and the determination of the current account and net foreign assets.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2203.03

ECON 3312.03: Resource Economics.
This course focuses on environmental economics and the economics of market failure as they pertain to the use of natural resources. A selection of resource sector will also be discussed. Fisheries, agriculture, forestry, and energy supply possibilities, but this will vary from year to year.
NOTE: Approved with Canadian Studies.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or ECON 2203.03, MATH 1000.03 or equivalent.

ECON 3333.03: Theories of Economic Development.
This course examines applications of economic theory to the problems of development and underdevelopment. Topics covered include growth theory, trade theory, distribution theory, resource mobilization, and the microeconomics of peasant agriculture.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or 2221.03, ECON 2201.03

ECON 3335.03: Environmental Economics.
The course covers an introduction to environmental economics. Topics include social decision making, externalities and public goods, regulatory approaches (standards, charges, tradable permits), forms of value derived from the environment and measurement techniques.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or 2221.00

ECON 3338.03: Econometrics I.
The theory of some quantitative methods commonly used by economists is discussed in the context of the classical linear model. Estimation problems caused by violations of the assumptions of the classical model are studied including heteroscedasticity and autocorrelation.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 1000.03 (or equivalent) and ECON 2200.03 or MATH 2000.03 or STAT 2000.03

ECON 3339.03: Econometrics II.
This course is an extension of ECON 3338.03 and covers a range of econometric methods that are used in economic research. The topics for this course include: Logit, Probit, Tobit, Distributed Lags, Panel Data, Simultaneous Equations and Time series.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 3338.03

ECON 3344.03: Public Finance.
This course studies the economics of public expenditure, tax and transfer programs in a federal state such as Canada. The core issue addressed is when and how public policy can (or cannot) improve equity and efficiency.
NOTE: Approved with Canadian Studies. In addition to the prerequisites, the student is advised to take ECON 2201.03 before taking ECON 3344.03.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or ECON 2203.03

ECON 3345.03: Public Finance II.
This course studies the economics of taxes and transfers. Equity and efficiency effects of both are examined. Approved with Canadian Studies.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03, or ECON 2201.03 and ECON 2203.03

ECON 3349.03: History of Economic Thought.
This course will examine theories of value, production, distribution, and growth as developed in classical political economy and neoclassical economics. Topics of equilibrium and stability, the links between classical political economy and macroeconomic theory, and reactions to classical and neoclassical economists will be considered as time permits.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or ECON 2201.03

ECON 3350.03: Social Cost Benefit Analysis.
Social cost benefit analysis is used to evaluate public projects and private sector regulations. It is similar to the revenue cost accounting used by firms but takes into account external costs and benefits such as environmental damages. This course explains the methodology in the context of case studies after which students apply the method to evaluate a public policy problem.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or 2221.03

ECON 3360.03: Ethics, Justice, and Economics.
Assumptions of Neoclassical economic theory are critically examined, with a focus on the ethical and distributional consequences of using markets as an allocation mechanism. We discuss the major conceptions of economic justice, including utilitarianism and social justice theory, Rawlsian egalitarianism, Nozickian libertarianism, Sen's capabilities approach, and equality of opportunity.
PREREQUISITE: ECON 2200.03, ECON 2201.03
CROSS-LISTED: PHIL 1341.03

ECON 3500.03: Public Economics.
This course examines the role of government in problems of resource allocation due to market failure. Concentrates on theories of public goods, collective action, potential of conflict and cooperation in individually-motivated actions, incentives structures capable of reducing rational, cooperative, group outcomes. Provides theoretical underpinnings of many applied fields. Involves mathematical methods.
NOTE: While a background of ECON 3700 is helpful, it is not a prerequisite.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or ECON 2221.03, MATH 1000.03 or instructor permission.

ECON 3600.03: Strategic Behaviour in Economics.
This course will examine theories of value, production, distribution, and growth as developed in classical political economy and neoclassical economics. Topics of equilibrium and stability, the links between classical political economy and macroeconomic theory, and reactions to classical and neoclassical economists will be considered as time permits.
FORMAT: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or ECON 2203.03, MATH 1000.03 or instructor permission.

ECON 3700.03: Mathematics for Economists.
This course provides mathematical methods used in modern economics. The lectures concentrate on the basic concepts of analysis, comparative statics and optimization theory. Topics include an introduction to set theory and matrix algebra, the implicit function theorem, unconstrained optimization, constrained optimization with equality and inequality constraints, and intertemporal choice.
FORMAT: Lecture
PREREQUISITE: ECON 2200.03 or ECON 2221.03, MATH 1000.03 or permission of the instructor
CROSS-LISTED: MATH 3700.03
ECON 3800.03: Financial Economics.
This course is an introduction to decision making by investors under uncertainty, portfolio theory, asset pricing, financial markets, and instruments. The course covers both the theoretical and practical aspects of investment, surveys the techniques available for economists, and emphasizes "hands-on" learning using Canadian and international case studies.
FORMA T: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or ECON 2220.03, ECON 2201.03
CROSS-LISTING: MATH 3800.03

ECON 3900.03: Financial Mathematics.
See course description for MATH 3900.03 in the Mathematics section of this calendar.
PREREQUISITE: MATH 2060.03 and (MATH 2120.03 or MATH 3110.03) or instructor’s permission
CROSS-LISTING: MATH 3900.03

ECON 4002.03: Experiential Learning (in Economics).
Experiential learning recognized the learning experience relevant to the program outside the scheduled curriculum. Students are responsible for drafting a learning agreement with the course coordinator and supervisor to specify learning outcomes, activities designed to accomplish these outcomes, a quantifiable assessment strategy and timetable.
PREREQUISITE: ECON 1101.03, ECON 1102.03, ECON 2200.03 or ECON 2220.03, ECON 2201.03, ECON 3338.03, ECON 3339.03. To be eligible, students should have a minimum average GPA of 3.0 in Economics.
EXCLUSION: Scheduled classes at a learning institution, study that would qualify for co-op work terms and paid work. Only one experiential learning class per degree is permitted.

ECON 4200.06: Honours Thesis.
This course is required for honours students, and helps students define, research, and write an original research project under the supervision of an economics faculty member. Students develop a topic, critique current literature, run statistical tests, and present their results in a public conference. Attendance at weekly department seminars is mandatory.
NOTE: To be given permission to take the Honours Thesis course, students should have completed the Dalhousie writing requirement, with a grade of B or higher in at least one Dalhousie writing course.

ECON 4420.03: Microeconomic Theory.
In-depth study of outcomes of decision-making by agents, individually, collectively or as an interdependent system. Selects topics from: linear and non-linear optimization and applications to theory of consumers and firms, general equilibrium, game theory, alternative solution concepts, comparative statics, stability, welfare, market failures, collective choice, intertemporal economies, uncertainty. 
FORMA T: Lecture 3 hours
PREREQUISITE: ECON 2200.03 or ECON 2220.03, ECON 2201.03, ECON 3318.03, ECON 3319.03 and permission of instructor

ECON 4421.03: Macroeconomic Theory.
Students are introduced to contemporary issues in macroeconomics including aggregate growth accounting; neoclassical growth models; monetary policy, inflation and unemployment; theories of consumption and investment; and trade and exchange rates. Mathematical methods are applied extensively and their application to economic problems will be stressed at both the theoretical and intuitive levels.
FORMA T: Lecture 3 hours
PREREQUISITE: ECON 2202.03 or ECON 2222.03, ECON 3300.03, MATH 1000.03 (or equivalent), MATH 1010.03

ECON 4426.03: Monetary Policy.
Assuming a basic knowledge of monetary institutions and macroeconomics, a critical analysis of the objectives and effectiveness of monetary policy is developed. Particular attention is given to the Canadian experience and the effectiveness of Canadian policy. Approved with Canadian Studies.
FORMA T: Lecture 3 hours
PREREQUISITE: ECON 2201.03 and ECON 3326.03

ECON 4440.03: Time Series in Economics.
This is a course in econometrics that focuses on time series models. The topics cover estimation and inference procedures for univariate and multivariate time series models with stationary and nonstationary data, including various vector autoregressive models, Markov switching models, and fractionally integrated processes.
FORMA T: Lecture
PREREQUISITE: ECON 3338.03 (grade of C or higher), ECON 3339.03 (grade of B or higher)

ECON 4700.03: Advanced Mathematics for Economists.
This is an advanced course in mathematics for economists, with an emphasis on dynamic optimization. The topics include vector spaces, multivariate calculus, difference and differential equations, and discrete/continuous dynamic optimization (including the optimal control theory and calculus of variations).
PREREQUISITE: ECON 3700.03 (grade of C or higher)

ECON 8891.00: Co-op Work-Term I.
ECON 8892.00: Co-op Work-Term II.
ECON 8893.00: Co-op Work-Term III.
Environmental Science

I. Introduction
Environmental Science in the Faculty of Science offers several programs. These include a BSc Honour’s Major in Environmental Science, a Minor in Environmental Science, a Double Major in Environmental Science and Community Design, and a BSc or BA Double Major or Combined Honours in Environmental Science and any Major/Honours subject in the Faculty of Science, Faculty of Arts and Social Sciences (FASS) or with Environment, Sustainability and Society (ESS). The Faculty of Arts and Social Sciences (FASS), the Faculty of Science, the Faculty of Computer Science and the Faculty of Architecture and Planning also offer a Minor in Environmental Studies which is administered through Environmental Science.

Environmental Science applies the findings and principles from multiple disciplines to environmental questions and problems. Environmental Science, by nature, is multidisciplinary and interdisciplinary. Most environmental scientists develop expertise in a particular discipline, and work co-operatively with specialists in other disciplines to solve environmental problems. They work in a variety of institutions in both the public and private sector: municipal, provincial and federal government departments, consulting and engineering companies, development aid organizations in the non-governmental sector and active community organizations. In all of these institutions they must integrate their scientific knowledge into the prevailing political, economic and legal systems.

The courses required for the BSc Environmental Science stress the links among the fields of study that the students acquire. Thus, students graduate with a combination of depth and breadth of knowledge and the ability to solve problems in the real world.

II. Degree Programs
A strong high school background in science (mainly Biology, Chemistry, Physics) is an asset, as are senior high school courses in Geography, Mathematics and English. For those considering these programs it is important to keep a number of options open as long as possible by taking the appropriate courses in Year 1.

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar. SCIE 1111.03 is recommended to satisfy the writing requirement in all programs.

A. BSc (20 credit) Major and Honours in Environmental Science

Departmental Requirements

1. 1000 Level

- DISP (SCIE 1505.18, 1515.36, 1520.30, 1530.27, 1540.27)

OR

- BIOL 1001.03 or BIOL 1002.03
- MATH 1000.03 or MATH 1213A.03
- STAT 1060.03 or MATH 1010.03 or MATH 2030.03
- CHEM 1011.03
- CHEM 1012.03
- EARTH 1000.03
- ENVS 1000.06
- SCIE 1111.03*

*An alternative writing course may be taken - see list on page 123 of this calendar.

Students are encouraged to take one half of their language/humanities requirement (which is one credit in total) in their first year.

The courses listed above should be taken in the first year, if possible, if ENVS 1000.06 is not taken in the first year, it should be taken in the second year. Also required but usually taken in the second year:

- ECON 1001.03 or ECON 1002.03

2. Common Core Courses

Completed at various times over a four year degree program, the Common Core Courses introduce students to the scope and magnitude of environmental science and are designed to provide students with an appreciation of the scientific, cultural, economic, historic, legal and social aspects of environmental issues.
• STAT 2000.03*
• BIOL 1020.03
• PHIL 2480.03**
• PHYC 2310.05
• ENVS 2000.03
• ENVS 2100.03
• ENVS 301.03
• ENVS 3200.03
• ENVS 3500.03
• ENVS 3501.03
• ENVS 3500.03
• ENVS 300.03
• ENVS 301.03
• ENVS 400.03

*This constitutes the writing course. An alternative writing course may be taken—see list on page 329 of this calendar. Students are encouraged to take one half of their language/humanities requirement (which is one credit in total) in their first year.

**PHIL 2480.03 satisfies half of the degree requirement of one full credit in Language and Humanities.

3. Electives

By presenting a wide range of topics inherent in the theme of human-environment relationships in the Common Core, students will be encouraged to assess their own interests and learning goals. Through the selection of electives, students can prepare themselves for learning experiences and careers that will meet their individual needs.

4. Honours Program

Students must have a minimum of nine and maximum of 12 credits of required ENVS courses above the 1000 level. In addition to the Common Core courses, students must choose enough electives from the list of Approved Environmental Science Equivalent Courses to meet this requirement (courses do not have to be picked from a list of approved electives to count toward the minimum and maximum requirements for the program). A list of approved Environmental Science Equivalent Courses is available from the Environmental Science Undergraduate Advisor or online (http://www.dal.ca/ess). Each ENVS and ENVS-equivalent course above the 1000 level must be passed with a grade “C” or better, and the average GPA for these courses must be at least 3.5. A cumulative GPA of 3.5 in the first two years is required to enter the Honours Program.

5. Major Students

Students must have a minimum of six and maximum of 10 credits of ENVS or ENVS-equivalent courses above the 1000 level. Students will fulfill this minimum requirement with the Common Core courses.

B. BSc (20 credit) Double Major or Combined Honours in Environmental Science

Students may complete a BSc Double Major/Combined Honours in Environmental Science and any Major/Honours subject offered in the Faculty of Science, Faculty of Arts and Social Science (FASS), or Environment Sustainability and Society (ESS). See section C for combinations with ESS.

Besides the general requirements for all BSc programs, students must meet the Faculty degree requirements for the BSc with Double Major, which includes 10-14 full credits in the major subjects beyond the 1000 level, with no more than nine nor fewer than five in either subject. Students must complete at least two full credits beyond the 2000 level in each major subject. Combined honours require 11-14 credits in the honours subjects beyond the 1000 level, with no more than nine nor fewer than five in either subject.

Departmental Requirements

1. 1000 Level

• DISP (SCE 1505.10, SCE 1515.16, 1520.30, 1530.27, or 1540.27) OK
• MATH 1000.03 or MATH 1215.03
• STAT 1000.03 or MATH 1010.03 or MATH 2030.03
• CHEM 101.03
• CHEM 102.03
• ENVS 1000.06
• SCE 1111.03*

*This constitutes the writing course. An alternative writing course may be taken—see list on page 329 of this calendar. Students are encouraged to take one half of their language/humanities requirement (which is one credit in total) in their first year.

Also required but normally taken in the second year:
• ENVS 1000.06

2. Common Core Courses

Common Core Courses listed in Section A.2, with the exception of PHYC 2310.03 and a choice of ENVS 2000.03 or ENVS 3001.03.

3. Subject B Courses

Chosen from any Major/Honours subject in the Faculty of Arts and Social Science, Faculty of Science, or Environment Sustainability and Society. A minimum of five and maximum of seven credits above 1000-level are required. See Subject B department academic advisor for specific requirements.

4. Electives

By presenting a wide range of topics inherent in the theme of human-environment relationships in the Common Core courses, students will be encouraged to assess their own interests and learning goals. Through the selection of electives, students can prepare themselves for learning experiences and careers that will meet their individual needs.

C. 20 Credit BSc Double Major and Combined Honours in Environmental Science (ENVS) and Environment, Sustainability and Society (ESS)

ENVS as (A) subject, ESS as (B) subject

Departmental Requirements

1. 1000 Level

• ENV 1000.06
• BIOL 1010.03 or BIOL 1020.03
• MATH 1000.03 or MATH 1215.03
• STAT 1060.03 or MATH 1010.03 or MATH 2030.03
• CHEM 101.03
• CHEM 102.03
• ERTH 1001.03
• SUST 1000.06*

*This course also serves as the writing course.

Also required but usually taken in the second year:
• ECON 1101.03 or ECON 1102.03

2. Common Core Courses

Common Core Courses listed in Section A.2, with the exception of PHYC 2310.03 and a choice of ENVS 2000.03 or ENVS 3001.03.

3. Subject B Courses

Chosen from any Major/Honours subject in the Faculty of Arts and Social Science, Faculty of Science, or Environment Sustainability and Society. A minimum of five and maximum of seven credits above 1000-level are required. See Subject B department academic advisor for specific requirements.

4. Electives

By presenting a wide range of topics inherent in the theme of human-environment relationships in the Common Core courses, students will be encouraged to assess their own interests and learning goals. Through the selection of electives, students can prepare themselves for learning experiences and careers that will meet their individual needs.

Departmental Requirements

1. 1000 Level

• ENV 1000.06
• BIOL 1010.03 or BIOL 1020.03
• MATH 1000.03 or MATH 1215.03
• STAT 1060.03 or MATH 1010.03 or MATH 2030.03
• CHEM 101.03
• CHEM 102.03
• ERTH 1001.03
• SUST 1000.06*

*This course also serves as the writing course.

Also required but usually taken in the second year:
• ECON 1101.03 or ECON 1102.03

2. Common Core Courses

Common Core Courses listed in Section A.2, with the exception of PHYC 2310.03 and a choice of ENVS 2000.03 or ENVS 3001.03.

3. Subject B Courses

Chosen from any Major/Honours subject in the Faculty of Arts and Social Science, Faculty of Science, or Environment Sustainability and Society. A minimum of five and maximum of seven credits above 1000-level are required. See Subject B department academic advisor for specific requirements.

4. Electives

By presenting a wide range of topics inherent in the theme of human-environment relationships in the Common Core courses, students will be encouraged to assess their own interests and learning goals. Through the selection of electives, students can prepare themselves for learning experiences and careers that will meet their individual needs.
• BIOL 1010.03 or BIOL 1020.03
• STAT 1060.03
• ERTH 1080.03
• SUST 1000.06*
• SUST 1001.06
* This course also serves as the writing course.

Common Core Courses
• BIOL 2060.03
• ENVS 2000.03 or ENVS 3001
• ENVS 2000.03
• ENVS 3000.03
• ENVS 3901.03
• ENVS 4001.03
• 1.0 credits of other ENVS courses above the 1000 level including at least 0.5 credits above 2000 level
• PHYC 2310.03
• STAT 2080.03
• SUST 2000.06
• SUST 2001.06
• SUST 3000.03
• SUST 3502.03
• SUST 4000.06
• three credits taken from the list of approved ESS electives (see page 44 of this calendar), not including required ENVS courses.

D. BSc (20 credit) Double Major in Environmental Science and Community Design

Space in this program is limited. Students must receive approval from the School of Planning Undergraduate Coordinator for admission to this program.

Departmental Requirements
1. 1000 Level
   • DISP (SCIE 1505.18, 1515.36, 1520.30, 1530.27, 1540.27)
   • ECON 1101.03 or ECON 1102.03
   • PLAN 1001.03 and 1002.03
   OR
   • BIOL 1010.03 and 1011.03 or 1020.03 and 1021.03
   • MATH 1000.03 or MATH 1215.03
   • MATH 1010.03 or MATH 2030.03 or STAT 1060.03
   • ERTH 1030.03
   • PLAN 1001.03
   • PLAN 1002.03
   • ECON 1101.03 or ECON 1102.03*
   * one full credit in a first-year single subject chosen from chemistry, physics, environmental science OR one additional half-credit in Earth Sciences.

2. Common Core Courses
   Common Core Courses listed in Section A.2, with the exception of PHYC 2310.03, and a choice of ENVS 2000.03 or ENVS 3001.03.

3. Community Design Courses (four credits)
   • PLAN 2001.03
   • PLAN 2002.03
   • PLAN 2005.03
   • PLAN 3001.03
   • PLAN 3002.03
   • PLAN 3005.03
   • PLAN 3006.03
   • One additional half-credit in PLAN

4. Electives
   By presenting a wide range of topics inherent in the theme of human-environment relationships in the Common Core courses, students will be encouraged to assess their own interests and learning goals. Through the selection of electives, students can prepare themselves for learning experiences and careers that will meet their individual needs.

E. BA (20 credit) Double Major or Combined Honours in Environmental Science

Students may complete a BA Double Major/Combined Honours in Environmental Science and any Major/Honours subject from the Faculty of Science, Faculty of Arts and Social Sciences (FASS), or Environment, Sustainability and Society (ESS).

Besides the general requirements for all BA programs, students must meet the Faculty degree requirements for the BA with Double Major, which include 10-14 full credits in the major subject(s) beyond the 1000 level, with no more than eight nor fewer than five in either subject. Students must complete at least two full credits above the 2000 level in each major subject.

Combined Honours requires 11-14 credits in the honours subjects beyond the 1000 level, with no more than eight nor fewer than five in either subject.

For the BA Double Major/Combined Honours in Environmental Science and Faculty of Arts and Social Sciences (FASS), the following are required:

Departmental Requirements
1. 1000 Level
   • ENVS 1000.06 (B or better)
   • One credit in a first-year science subject chosen from BIOL, CHEM, PHYC, ERTH, ECON
   • STAT 1060.03

2. 2000 Level
   • ENVS 2000.03
   • ENVS 2100.03
   • One credit chosen from:
     • BIOL 2003.03
     • BIOL 2004.03
     • BIOL 2060.03
     • GEOG 2800.03
     • CHEM 2505.03
     • OCEA 2000.06
     • ECON 2216.03
     • ECON 3000.06
     • ERTH 2410.03
     • PHYC 2310.03
     • PHIL 2400.03
     • PHIL 2401.03

3. 3000 and 4000 Level
   • ENVS 3200.03
   • ENVS 3500.03
   • ENVS 3601.03
   • ENVS 4210.03
   • ENVS 4220.03
   • BIOL 3060.03
   • BIOL 3061.03
   • BIOL 4160.03
   * If ESS is the A subject, this requirement is waived.

4. At least one credit from:
   • ENVS 3000.03
   • ENVS 3001.03
   • ENVS 3225.03
   • ENVS 3226.03
   • ENVS 3301.03
   • ENVS 3400.03
   • ENVS 3500.03
   • ENVS 3601.03
   • ENVS 3801.03
   • ENVS 4210.03
   • ENVS 4220.03
   • BIOL 3060.03
   • BIOL 3061.03
   • BIOL 4160.03

5. Subject B Courses
   Chosen from any Major/Honours subject in the Faculty of Arts and Social Sciences. A minimum of five and maximum of seven credits above 1000 level are required. See Subject B department academic advisor for specific requirements.
6. Electives
By presenting a wide range of topics inherent in the theme of human-environment relationships in the Common Core courses, students will be encouraged to assess their own interests and learning goals. Through the selection of electives, students can prepare themselves for learning experiences and careers that will meet their individual needs.

F. Minor in Environmental Science
Students in other 20-credit degree programs may choose to include a Minor in Environmental Science in their programs. Requirements are outlined in the College of Arts and Science, Minors section of this Calendar starting on page 129.

G. Minors
Minors program allows students to develop subject specialties in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year major or concentrated honours program (including co-op programs).

Students in a 20-credit BSc program in Environmental Science may choose to include a Minor selected from the list of approved Minors beginning on page 132 in this Calendar. Note that courses counted toward four Major or Honours program cannot be used to fulfill the requirements of a Minor program.

Bachelor of Computer Science (BCS) with a Minor in Environmental Studies
BCS students must take three full credits of required courses, plus two full credits from the approved list of elective courses below. Note: In planning their programs students must take into account the prerequisites which apply to many of the elective courses listed below. The following rules apply to the selection of courses for the Minor:
- No class can fulfill a requirement of both the Major or Honours subject and the Minor.
- At least one full credit beyond the required courses must be at the 3000 level or above.
- Additions to the following lists will be made as relevant classes become available.

Required courses:
- ENVS 1080.00: Introduction to Environmental Science OR DISP (SCIE 1515.36, 1520.30, 1540.27)
- ENVS 2480.03: Environmental Ethics
- ENVS 3501.03: Environmental Problem-Solving I
- ENVS 3502.03: Environmental Problem-Solving II
- ENVS 3200.03: Introduction to Environmental Law

Electives (two full credits from the list):
- BIRD 2803.03: Introduction to Marine Life of Nova Scotia
- BIRC 3065.03: Resource Ecology
- BIRC 3225.03: Plants in the Human Landscape
- BIRC 3226.03: Economic Botany, Plants and Civilization
- BIRC 3601.03: Nature Conservation
- BIRC 4040.03: Sustainability and Global Change
- CHEM 2503.03: Environmental Chemistry I
- CHEM 4020.03: Environmental Chemistry II
- CHEM 4903.03: Atmospheric Chemistry
- CTMP 3210.03: Introducing Bodies, Scales and Environments
- ECON 2213.03: Emerging Giant: The Economic Rise of China and India
- ECON 2216.03: Economics of Global Warming
- ECON 3352.03: Resource Economics
- Econ 3330.03: Environmental Economics
- ERTH 2410.03: Environmental issues in Earth Sciences
- ERTH 3440.03: Geomorphology
- ERTH 4495.03: Introduction to Landscape Simulation
- ERTH 4520.03: GIS Applications to Environmental and Geological Sciences
- ERTH 4530.03: Environmental Remote Sensing
- ENVN 2180.03: Environmental Informatics
- ENVN 3000.03: Environmental Science Internship
- ENVN 3220.03: International Law for Environmental Scientists
- ENVN 3226.03: Economic Botany, Plants and Civilization
- ENVN 3300.03: Contaminated Site Management
- ENVN 3301.03: Enterprise Sustainability
- ENVN 3400.03: Human Health and Sustainability
- ENVN 3500.03: Geoscience Information Management
- ENVN 3601.03: Dendrochronology
- ENVN 4210.03: Administrative Environmental Law: Natural Justice and Unnatural Acts
- INTD 2001.03: Introduction to Development I
- INTD 2002.03: Introduction to Development II
- OCLA 2000.03: The Blue Planet
- OCLA 2080.03: Climate Change
- PHIL 2475.03: Justice in Global Perspective
- PHIL 2485.03: Technology and the Environment
- PHYC 2310.03: Energy and the Environment
- PHYC 2400.03: Climate Change
- PLAN 3010.03: Urban Ecology
- POLI 3360.03: Politics of Climate Change
- POLI 3583.03: Politics of the Environment
- POLI 3589.03: Politics of the Sea I
- SOSA 2100.06: Environment and Culture
- SOSA 3211.03: Community and Change in Rural Society
- SOSA 3220.03: Coastal Communities in the North Atlantic

H. Co-operative Education Program in Environmental Science
Co-operative Education in Environmental Science (Co-op) is a program that combines academic study with career-related work experience. Students complete three workterms and graduate with a BSc, Co-op. The program requires a minimum of three workterms. A student in the co-op program must complete SCI 2800.00, a mandatory non-credit interdisciplinary seminar in the fall semester of their second year. The student must also register each workterm as ENVS 8891.00, ENVS 8892.00, ENVN 8893.00, or ENVN 8894.00, depending on how many workterms have already been completed. At least one workterm must not be during the summer term.

Co-op begins in the second year of study. A GPA of at least 3.0 for the first year of study is required for admission. In addition to completing at least three workterms, a student in the co-op must fulfill the requirements of either a 20 Credit BSc Major/Honours or a 20 Credit BSc Combined Honours or Double Major in Environmental Science while maintaining a minimum GPA of 3.0. Departmental and Science Co-op Office approval is required to be admitted to Co-op in Environmental Science. Interested students should inquire about the program before beginning their second year of study. Application deadline is August 1st.

Additional information may be found in the calendar under the heading “Co-operative Education” or visit [https://www. Dal.vu/education/co-op].

I. Other programs
BSc/Engineering or BA/Engineering Concurrent Programs
Students will normally complete the requirements for a 15 Credit BSc or 15 Credit BA, and the first two years of engineering studies leading to the Diploma in Engineering. The concurrent program can be completed in three years. Details are provided in the College of Arts and Science Degree Requirements starting on page 125 of the calendar.

J. Diplomas, Certificates, and Language Proficiency Certificates
In combination with a BA or BSc these are certificates or diplomas that can be obtained to emphasize areas of proficiency. For a complete list and details refer to the College of Arts and Science Degree Requirements starting on page 125 of the calendar.

Certification that may be of particular interest to students in Environmental Science include:
- Certificate in Environmental Impact Assessment
- Certificate in Geographic Information Science

Lists of requirements and checklists can also be found on the Environmental Science website [http://www.dal/vu/environment].
Students should enroll in these certificates by contacting C. Wells or D. Rainham (for GIS Certificate), P. Lane (for EIA Certificate), or the Environmental Science Advisor. Students can enrol when in their second, third or fourth year of the BSc program; however, early enrolment is advised because it may otherwise be difficult to meet the requirements within four years.

III. Course Descriptions

ENVS 1000/X/Y.06: Introduction to Environmental Science.
This full year course introduces numerous topics including biogeochemical cycles, food webs, biodiversity, human population growth, soil, agriculture, climate, pollution, toxicology, energy, water, forests, oceans, minerals, law, waste management and urban issues. Tutorials reinforce and supplement lectures and allow small group discussion and debate.
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMA T: Lecture 3 hours, tutorial
EXCLUSION: ENVI 1000/Y.06

ENVS 2000.03: Urban Field School.
This field course offers an introduction to urban environmental science by examining the role of humans in ecosystems and how human change ecosystem processes and functions within urban areas. Students gain hands-on experience in environmental science techniques during excursions in different urban settings within the Halifax Regional Municipality.
NOTE: Offered in early May. Daily field trips and/or labs. An auxiliary fee is charged to cover field expenses.
FORMA T: Field intensives, labs, lectures
PREREQUISITE: ENVS 1000.06 or SCIE 1505.18 or equivalent and open only to students in the BSc or BA Environmental Science Programs

ENVS 2100.03: Environmental Informatics.
Environmental Informatics is the knowledge, skills and tools which enable information to be collected, managed and disseminated to support research in environmental science. Students develop skills for the analysis, evaluation and synthesis of knowledge in environmental science. Information systems, tools, and techniques are introduced and applied to current environmental challenges.
FORMA T: Lecture/tutorial
PREREQUISITE: ENVS 1000/X/Y.06 or SCIE 1505.18 or equivalent

ENVS 2410.03: Environmental Issues in Earth Sciences.
Geology underlies many of the environmental problems facing humanity today. Topics include environmental aspects of energy and mineral resources, geologic hazards, geologic connections to pollution and waste disposal, and the role that water plays in its various guises. Canadian examples are incorporated wherever appropriate. Approved with Canadian Studies.
NOTE: This course is not offered every year. Please consult department in the spring for further information.
FORMA T: Lecture 3 hours
PREREQUISITE: One of: ERTH 1080, ERTH/GEOG 1030, ERTH/GEOG 1060, ENVS 1000, SUST 1001 with a grade of B or above, or DSPM with Earth Sciences
CROSS-LISTING: CANA 2410, ERTH 2410
EXCLUSION: This course is not available for Earth Sciences Majors

ENVS 3000.03: Environmental Science Internship.
This course allows students to gain hands-on experience while addressing a question of personal and academic interest relevant to the field of environmental science by working as interns for 8 hours a week over a twelve-week period on a specific project at a sponsoring agency. Approved with Canadian Studies.
NOTE: It is the student's responsibility to consult with Environmental Program at least 3 weeks prior to the term in which the internship will take place to arrange for a placement and to make sure that the details of the internship are in accordance with university standards.
FORMA T: Internship
PREREQUISITE: Open ONLY to students in Minor in Environmental Studies, Honours/Major Double Major Combined Honours in Environmental Science

ENVS 3001.03: Environmental Science Field School.
Daily field trips introduce methods used in environmental science and environmental processes at diverse sites within Nova Scotia. Involves full-day trips from Halifax and a multi-day camping trip away from Halifax. Offered during the last 2 weeks before Labour Day.
FORMA T: Full-day and overnight field trips.
PREREQUISITE: Open ONLY to students in BSc or BA Environmental Science

ENVS 3200.03: Introduction to Environmental Law.
This course will take a look at how environmental law operates in Nova Scotia within the Federal framework and it will illustrate some of the multi-disciplinary aspects which make this area of law part science, part art and part soothsaying.
FORMA T: Lecture 3 hours
PREREQUISITE: Must be a third year student

ENVS 3225.03: Plants in the Human Landscape.
The use of plants for human recreation and aesthetic purposes in gardens, public parks, suburbs and urban landscapes. Topics include: history of gardens, garden design, plant materials, abode landscaping, plants and human health. The course includes field trips and group work and students complete a design project.
FORMA T: a 405279 الزمن יום鲨鱼
PREREQUISITE: A405279/BIOL 1010.03 or BIOL 2020.03 (C- or better) and BIOL 1011.03 or BIOL 1021.03 (C- or better) or DSPM or PLAN 2001.03
CROSS-LISTING: A405279 PLAN 3225, BIOL 3225

ENVS 3226.03: Economic Botany, Plants and Civilization.
The story of the human use of plants for food, fibre and fuel including the botany, domestication, development, distribution, production, processing, history, economic and social impacts of the major world crops (cereal, fruits, vegetables, flowers and industrial crops) and the development of novel plant based bioproducts (bio-fuels, etc).
FORMA T: Lecture/lab
PREREQUISITE: ENVS 1000.06 or BIOL 1010.03 or BIOL 1021.03 (C- or better) and BIOL 1011.03 or BIOL 1021.03 (C- or better) or DSPM or PLAN 2001.03
CROSS-LISTING: BIOL 3226.03

ENVS 3300.03: Contaminated Site Management.
This course examines the relationships between the health of populations and health determinants in the context of environmental sustainability. Weekly laboratory exercises will teach students how to use these tools for environmental health research.
FORMA T: Lecture/tutorial
PREREQUISITE: PREREQUISITE: CHEM 1011.03 or ENVS 1000/Y.06 or ENVS 2001.03

ENVS 3400.03: Environment and Human Health.
This course examines the relationships between the health of populations and health determinants in the context of environmental sustainability. Weekly laboratory exercises will teach students how to use these tools for environmental health research.
FORMA T: Lecture/tutorial
PREREQUISITE: C3-REQUISITES: ENVS 1000/Y.06 or ENVS 2001.03

ENVS 3500.03: Geoscience Information Management.
See course description for ERTH 3500 in the Earth Sciences section of the calendar.

ENVS 3501.03: Environmental Problem Solving I.
This course introduces students to concepts and methods for analyzing environmental problems. Students will learn analytical approaches for problem solving that are appropriate for a wide range of environmental issues. Weekly laboratory exercises will teach students how to use these tools for environmental health research.
FORMA T: Lecture, Lab
PREREQUISITE: Must be a third year student or have permission of instructor
CROSS-LISTING: GEOG 3401.03

ENVS 3600.06: Geoscience Information Management.
See course description for ERTH 3500 in the Earth Sciences section of the calendar.

ENVS 3501.03: Environmental Problem Solving II.
This course introduces students to concepts and methods for analyzing environmental problems. Students will learn analytical approaches for problem solving that are appropriate for a wide range of environmental issues. Weekly laboratory exercises will teach students how to use these tools for environmental health research.
FORMA T: Lecture, Lab
PREREQUISITE: PREREQUISITE: ENVS 1000.06 (with a grade of B or better) or ENVS 2001.03.
Must be a 3rd year student OR have permission of instructor
ENVS 3502.03: Environmental Problem Solving II: The Campus as a Living Laboratory.
In this course the campus serves as a living laboratory for identifying, evaluating and assessing indicators of progress toward greater campus sustainability. Working in groups, students apply problem solving models to case studies using qualitative and quantitative research methods and make recommendations for improvements on campus based on their analyses.
PREREQUISITE: ENVS 3501.03 or permission of instructor
CROSS-LISTING: SUST 3502.03

ENVS 3601.03: Global Biogeochemical Cycles.
An interdisciplinary course that examines examples of the cycling of water, carbon, nitrogen, phosphorus, and other elements and human impacts on these cycles, as manifested in our atmospheric, soil, ocean and freshwater environments. This course involves discussion of the latest developments in this rapidly changing field and will provide a framework for those interested in global change.
PREREQUISITE: An introductory Chemistry class and one of ENVS 1000.06, SUST 1001.06, ERTH 1080.03, or ERTH 1090.03, and OCEA 2000.06, or OCEA 2001.05 and OCEA 2002.05
CROSS-LISTING: ERTH 3601.03

ENVS 3615.03: Methods in Ecology.
See course description for BIOL 3615 in the Biology section of the calendar.

ENVS 3624.03: Urban Freshwater Systems.
See course description for BIOL 3624 in the Biology section of the calendar.

ENVS 3632.03: Applied Coastal Ecology.
See course description for BIOL 3632 in the Biology section of the calendar.

ENVS 3633.03: Spatial Information and GIS in Ecology.
A hands-on approach to understanding and using spatial information, this course introduces students to the use of Geographic Information Systems (GIS) as a tool to answer ecological questions. Together, students conduct a major field project, collecting data, creating maps using GIS, and interpreting spatial patterns, to address and apply problem in ecology.
NOTE: Students may only be admitted through DEASIDE, an auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see semester dates.
PREREQUISITE: BIOL 2060.03
CROSS-LISTING: BIOL 3633.03, GEOG 3633.03

ENVS 3664.03: Interlaced Ecology and Diversity.
See course description for BIOL 3664 in the Biology section of the calendar.

ENVS 3701.03: Fundamentals of Hydrology.
This course is an introduction to hydrology, emphasizing surface processes and watershed responses. In this course we learn about both the pure and applied uses of hydrology. The course is quantitative and introduces hydrologic processes in the atmosphere, on the land surface, in groundwater and in stream channels.
FORMAT: Lecture 3 hours, tutorial 1.5 hours
PREREQUISITE: MATH 1000.03 or MATH 1214.03 and one of ENVS 1000.06, SUST 1001.06, ERTH 1080.03, or ERTH 1090.03 or one of SCI 115X/1Y, SCI 150X/1Y, SCI E 150X/1Y, SCI 150X/2, SCI 154X/33 and completion of 2 years of an undergraduate degree.
PHYS 1280 and PHYS 1290 (or PHYS 1300X-Y) and MATH 1015X-Y are recommended.
CROSS-LISTING: ERTH 3701.03

ENVS 3801.03: Directed Readings in Environmental Science.
This course is intended for third and fourth-year students who wish to study in an area of environmental science not covered in other courses offered at the university. It involves independent study supervised by a faculty member. Class content and marking scheme must be approved by the Director of Environmental Programs during the first week of the academic term in which the credit is being sought. It is the student's responsibility to consult with Environmental Programs at least 2 weeks prior to the term in which the Directed Readings course will take place.
PREREQUISITE: ENVS 1000X/1Y or ENV 2001.03 and third year student status.

ENVS 4001.03: Environmental Impact Assessment.
This course provides an opportunity to explore all aspects of environmental impact assessment (EIA) as practiced in Canada and in other countries. The course traces the development of the EIA over the past 30 years and critically examines the scientific, procedural and political dimensions.
NOTE: All students taking BIOL 4001.03 or ENVS 4001.03 must have completed 90 credits and have permission of instructor.
FORMAT: Lecture 3 hours and lab 4 hours (winter only)
PREREQUISITE: ENVS 1000X/1Y or BIOL 2001.03 or ERTH 2410.03 or ERTH 2420.03 or GEOL 2100X/0Y or GEOL 2200.03 or ERTH 2200.03 or INTD 2001.03 or INTD 2002.03 or OCEA 2000X/0Y or OCEA 2001.03 and OCEA 2002.03 or SUST 2000.06 or SUST 2001.06.
CROSS-LISTING: ENVS 4730.03 (winter session only), BIOL 4001.03

ENVS 4002.03: The Science of Wetland Ecosystems.
An interdisciplinary introduction to wetland ecosystems, with emphasis on the relationships between wetlands and the surrounding watershed. This relationship determines wetland type, function and is developed landscapes. Students will gain an appreciation of the physical relationship through an examination of wetland hydrology, chemical cycling, and ecology. Management of wetlands in the landscape through policy and engineering will also be studied.
FORMAT: Lecture
PREREQUISITE: CHEM 1011.03 or CHEM 1021.03 or CHEM 1022.03 and BIOL 2001.03

Environmental Science in Canada is largely defined by statutes and regulations. The course will consider administrative processes, the role of legislation, the function of administrative boards and tribunals and the general principles of judicial review. Offered every odd winter term.
FORMAT: Lecture 3 hours
PREREQUISITE: ENVS 3200.03 with a grade of A-

ENVS 4220.03: International Environmental Law for Scientists.
The problems posed by environmental issues are global requiring solutions that are only achievable through multi lateral collaboration. Over 20 years, there has been an explosion of international agreements intended to either redress or avoid environmental disaster. Some of these laws are based on sound science, others based on politics. How do these two elements mix at the international level? Can international law accommodate the inherent uncertainty in scientific hypotheses? Offered every even winter term.

ENVS 4901.03: Honours Thesis Part A.
A four month period of independent research project carried out under the supervision of an approved faculty member. The project involves research design and methodologies, and an independent environmental science research project carried out under the supervision of an approved faculty member. Required for Honours Environmental Science.
FORMAT: Lecture/seminar
PREREQUISITE: CHEM 3200.03 or a grade of A-

ENVS 4902.03: Honours Thesis Project B.
Independent research project carried out under the supervision of an approved faculty member or affiliated research scientists. Required for Honours Environmental Science.
PREREQUISITE: ENVS 4901.03

ENVS 4903.03: Advanced Topics in Environmental Science.
This course will address current interdisciplinary issues in environmental science with topics varying each semester. Details as to the content of the course will be announced by Environmental Programs at least one month in advance of the
The course will be taught by Dalhousie faculty, and/or visiting scholars. 

**FORMAT:** Lecture/seminar

**PREREQUISITE:** This class is restricted to students in the Honours/Major/Double Major in Environmental Science, or permission of the Director of Environmental Programs.

**IV. Co-op Workterms**

Each workterm is a prerequisite of the succeeding workterm. See Environmental Programs Co-op Academic Advisor for details.

- **ENVS 8891.00:** Co-op Workterm 1.
- **ENVS 8892.00:** Co-op Workterm 2.
- **ENVS 8893.00:** Co-op Workterm 3.

**Environment, Sustainability and Society**

<table>
<thead>
<tr>
<th>Location</th>
<th>College of Sustainability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone</td>
<td>(902) 494-4581</td>
</tr>
<tr>
<td>Fax</td>
<td>(902) 494-6923</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:sustainability@dal.ca">sustainability@dal.ca</a></td>
</tr>
<tr>
<td>Website</td>
<td><a href="http://www.ess.dal.ca">www.ess.dal.ca</a></td>
</tr>
</tbody>
</table>

**I. Degree Programs**

The College of Sustainability offers a BSc Double Major and Combined Honours with any major/honours subject in the Faculty of Science and the Faculty of Computer Science. For complete details about the College, its programs and courses please see the College of Sustainability section on page 44 of the Calendar.

**A. BSc, Double Major/Combined Honours, Environment, Sustainability and Society**

- **i. Environment, Sustainability and Society as Subject A**
  - **Subject A: Environment, Sustainability and Society**
    - SUST 1000.06 (one full credit in fall term)
    - SUST 1001.06 (one full credit in winter term)
    - SUST 2000.06 (one full credit in fall term)
    - SUST 2001.06 (one full credit in winter term)
    - SUST 3000.03
    - SUST 3502.03
    - SUST 4000X/Y.06
  - For Double Major:
    - three full credits from the approved list of ESS Electives (at least two credits outside subject B)
  - For Combined Honours:
    - two full credits from the approved list of ESS Electives (at least one credit outside Subject B)
  - Cumulative GPA in Honours subject courses above 1000 level of 3.3, with no individual grade less than C.

- **Subject B: Any Major/Honours subject in the Faculty of Science**
  - For combined requirements please consult the calendar and academic advisor for your allied subject.

- **ii. Environment, Sustainability and Society as Subject B**
  - **Subject A:** Any Major/Honours subject in the Faculty of Science or the Faculty of Computer Science
  - For detailed requirements please consult the calendar and academic advisor for your allied subject.
  - Additional requirements for Combined Honours: Must comply with Honours requirements for Subject A.
  - Subject B: Environment, Sustainability and Society
    - SUST 1000.06 (one full credit in fall term)
    - SUST 1001.06 (one full credit in winter term)
    - SUST 2000.06 or SUST 2001.06
    - one additional full credit in SUST at the 2000 level or above
    - three credits (18 credit hours) from the approval list of ESS elective (at least two credits outside subject A and at least two credits at the 3000 level or above)

**B. Minor in Environment, Sustainability and Society**

- a minimum of three full credits (18 credit hours) and a maximum of 4.5 credits at the 2000 level or above in SUST courses
- prerequisites: SUST 1000.06 and SUST 1001.06
I. Minor in Food Science for BSc Major or Honours
See Minors in the College of Arts and Science section of this calendar (page 128).

II. Course Descriptions

GEOG 1030.03: Introduction to Physical Geography.
This non-lab science course examines the nature of weather and climate, Earth's surface features and processes, and internal processes that contribute to landform development. An integral component of the course is an exploration of the representation and interpretation of physical geographic data through the examination of a variety of maps.

NOTE: There are no pre-requisites for this course and students may take this class in addition to any other first year Earth Sciences class.

FORMAT: Lecture-class 3 hours each week, and 1 hour tutorial weekly. Some classes may include map work.

CROSS-LISTING: ERTH 1030.03

GEOG 1035.03: Introduction to Human Geography.
Human geography examines the ways that people perceive, use, and alter the landscapes they occupy. Two themes run throughout the course. One theme deals with the aspects of culture that characterize different social groups. These are matters of material culture as well as group behaviour, and belief systems. The second theme has to do with the systems of production, livelihood, spatial organization, and administration that societies erect. Interwoven with these themes is the interaction of human societies with each other and their environment. The class introduces the principal tools of human geography: maps, demography, and analysis of cultural patterns.

Geography

Location: School of Planning
5410 Spring Garden Road
PO Box 15000
Halifax, NS B3H 4R2

Telephone: (902) 494-2100
Fax: (902) 423-6672
Website: http://archplan.dal.ca/planning

There is no degree in Geography at Dalhousie University, however, it is possible to do a Minor in Geography through the Faculty of Science, Faculty of Arts and Social Science, and Faculty of Architecture and Planning. Courses in geography may be taken by students in any program, and if cross-listed with science courses, may be used to meet the life or physical science subject requirement of a BA degree. Similarly, courses in geography cross-listed in the Faculty of Arts and Social Science may be used to meet the Social Sciences and Humanities requirement of a BSc degree.

Geography at Dalhousie University is overseen by the Faculties of Architecture and Planning, Arts and Social Sciences and Science, and each Faculty has a Geography Coordinator.

Deans
Macy, C., BA (Arch) (Calif. At Berkeley), MArch (MIT)
Moore, C., BA (Hons), PhD (Cambridge) Professor, Psychology
Summerby-Murray, R., ARCL Dip (Trinity College, London), BA, MA (Canterbury), PhD (Toronto)

Geography Coordinators
Architecture and Planning: Manuel, P., BA (Carleton), MSc (McGill), PhD (Dalhousie), MCIP, LPP (patricia.manuel@dal.ca)
Arts and Social Sciences: Summertime-Murray, R., ARCL Dip (Trinity College, London), BA, MA (Canterbury), PhD (Toronto) (fassdean@dal.ca)
Science: Ryan, A. M., BSc (Univ College Dublin), MSc, BEd (Acadia), MEd (MSVU), PhD (Dalhousie) (amryan@dal.ca)

I. Minor in Geography
See Minors in the College of Arts and Science section of this calendar (page 128).

II. Course Descriptions

GEOG 1030.03: Introduction to Physical Geography.
This non-lab science course examines the nature of weather and climate, Earth's surface features and processes, and internal processes that contribute to landform development. An integral component of the course is an exploration of the representation and interpretation of physical geographic data through the examination of a variety of maps.

NOTE: There are no pre-requisites for this course and students may take this class in addition to any other first year Earth Sciences class.

FORMAT: Lecture-class 3 hours each week, and 1 hour tutorial weekly. Some classes may include map work.

CROSS-LISTING: ERTH 1030.03

GEOG 1035.03: Introduction to Human Geography.
Human geography examines the ways that people perceive, use, and alter the landscapes they occupy. Two themes run throughout the course. One theme deals with the aspects of culture that characterize different social groups. These are matters of material culture as well as group behaviour, and belief systems. The second theme has to do with the systems of production, livelihood, spatial organization, and administration that societies erect. Interwoven with these themes is the interaction of human societies with each other and their environment. The class introduces the principal tools of human geography: maps, demography, and analysis of cultural patterns.
GEOG 1060.03: Earthquakes, Volcanoes and Natural Disasters.

Earthquakes, meteorite impacts, rapid climatic change, volcanic eruptions, hurricanes, floods, and floods are natural disasters that affect our economy, public policy, and safety. Where, when and how frequently do natural disasters occur? Are predictions possible? Are media portrayals of risk and damage realistic? This course, aimed at the neophyte, investigates these intriguing questions. Examples of "disaster films," in conjunction with lectures and discussions are used to identify the causes, consequences and sometimes erroneous perceptions of natural hazards. Examples from Atlantic Canada and contemporary disasters are used to assess local risk and real-time events worldwide.

FORMA T: Lecture 3 hours

CROSS-LISTING: ERTH 1080.03

GEOG 2000.03: Cartography.

Maps, which are visual representations of our world, are essential tools to disciplines that upon archaeology to zoology. Navigation is the art and science of finding one's way through both natural and built landscapes. This class primarily uses hands-on assignments to investigate how maps are constructed and interpreted (including concepts of spatial reference systems, scale, projections, symbols, and design), how maps can distort perceptions, and can influence one's decisions. Students also study navigation by compass, global positioning systems (GPS), and deal-reckoning.

FORMA T: Lecture 3 hours plus occasional field trips as appropriate

PREREQUISITE: ERTH/GEOG 1010, or ERTH 1010

GEOG 2001.03: Landscape Analysis.

Designers and planners need to understand the influence of physical, biological, and cultural systems in landscape evolution, and the relevance of that information in analyzing land capability. Students develop inventory and analysis tools for understanding environmental processes and their implications for design and planning. There will be field trips and a lab component.

FORMA T: Laboratory 1 or 4 hours

PREREQUISITE: ERTH 1010

CROSS-LISTING: PLAN 2001.03

GEOG 2006.03: Space, Place and Geographic Information Systems.

Planners use Geographical Information Systems (GIS) for data collection, communication, and data analysis. Properly interpreted, GIS data contribute to informed decision-making. This course explores the application of GIS in planning within a project planning and setting. GIS are used in urban and geographical planning issues. The course also considers mapping standards used within the field of planning, and examines legal, privacy, and ethical implications of using GIS data in the public realm.

FORMA T: Lecture/labs

This three-weeks lecture

PREREQUISITE: PLAN/GEOG 2001

CROSS-LISTING: PL 2006.03

GEOG 2070.03: Area Studies on Mexico and Central America.

Following an examination of the indigenous heritage, and the colonial legacy of the Aztecs and the Spanish conquistadors, the class deals principally with the contemporary period, examining the Mexican Revolution and its aftermath, the Somosa dynasty, the Sandinistas in Nicaragua under the Sandinistas, the U.S. role in the region, the human rights situation in Central America, and probable developments in the region. The class is designed to provide an understanding of the contemporary reality of this volatile region, in many ways a microcosm of the crucial situation of Latin America in a whole.

FORMA T: Lecture/discussion 2 hours/conducted in English

PREREQUISITE: No prerequisites. Open to students in all departments. No knowledge of Spanish necessary

CROSS-LISTING: HIST 2283.03

GEOG 2100.XXY.06: Environment and Culture.

Concern about the environment is a widespread phenomenon as virtually everyone is confronted by environmental issues -- for they global warming, the depletion of the ozone layer or the continuing problems of water pollution and solid waste disposal. Furthermore, we are becoming increasingly aware of that environmental issues often have global implications. The efforts of citizens in Canada to deal with environmental pollution, for example, may lead to conflicts with rural regions. Similarly, rural regions, in their use of various chemical agents, may find themselves affecting the lives of city dwellers. This class will explore key relationships between human culture and the physical environment. Topics to be examined include: historical, social, and legal aspects of contemporary environmentalism, food and agriculture, environmental ethics, health, traditional ecological knowledge, sustainable forestry, waste management, public participation and environmental movements.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMA T: Lecture

CROSS-LISTING: One of SOSA 1000.XY.06, SOSA 1050.XY.06, SOSA 1100.XY.06, SOSA 1200.XY.06

GEOG 2201.03: Introduction to Development I.

Poverty, inequality and injustice are widespread throughout the contemporary developing world. This course will examine how this situation came to be. It begins by analyzing the different meanings of the term "development" and then examines the major approaches that have shaped practical development initiatives on the ground in the Global South over the past 50 years. The course also examines the legacies of history for contemporary development efforts in the Global South through specific case studies.

FORMA T: Lectures/tutorial

PREREQUISITE: Completion of six credits at the 1000 level or permission of the instructor

CROSS-LISTING: INTD 2001.03

GEOG 2202.03: Introduction to Development II.

This course builds upon the core concepts and approaches studied in INTD 2001 (i.e., different theoretical approaches to development and the historical creation of underdevelopment). The course examines key contemporary issues in the field of development and analyses the connections between these: debt, global trade rules, foreign aid, hunger and malnutrition, rural and urban livelihoods, population growth. The course also examines the principle actors involved in development and the strategies they have used to promote and resist development, including governments, non-governmental organizations (NGOs), the World Bank and IMF, and popular social movements in the Global South and North.

FORMA T: Lectures/tutorial

PREREQUISITE: Completion of six credits at the 1000 level or permission of the instructor

CROSS-LISTING: INTD 2002.03

GEOG 2206.03: Africa: An Introduction.

This course will focus on contemporary Africa. Stereotypical portrayals of Africa will be examined and critiqued with the goal of understanding Africa's diversity and complexity of the continent in order to better understand the historical, contemporary, and future development of Africa.

FORMA T: Lectures/tutorials

CROSS-LISTING: INTD 2106.03

GEOG 2236.03: Regional Development.

Most countries have richer and poorer regions. Economic development issues, such as economic, social, and gender factors, area and local patterns of development and analyses the connections between them: debt, global trade rules, foreign aid, hunger and malnutrition, rural and urban livelihoods, population growth. The course also examines the principle actors involved in development and the strategies they have used to promote and resist development, including governments, non-governmental organizations (NGOs), the World Bank and IMF, and popular social movements in the Global South and North.

FORMA T: Lectures/tutorial

PREREQUISITE: Completion of six credits at the 1000 level or permission of the instructor

CROSS-LISTING: INTD 2106.03

GEOG 2370.03: Regional Development.

Most models of the atmosphere predict that increasing concentrations of greenhouse gases will continue to warm the surface of the earth and the oceans in the twenty-first century. The magnitude of the warming and its consequences are still very controversial. This class will address, mainly from a non-skeptical viewpoint, the reasons for the greenhouse effect, the current warming in the context of the historical record of climate change, and sources of natural climate variability such as the El Nino Southern Oscillation. It will also review arguments that attribute the warming that has occurred in the Twentieth century to natural variability, and those that attribute the warming to increased human emission of greenhouse gases.

FORMA T: 3 hours

CROSS-LISTING: PHYC 2000.03

EXCLUSION: ECON 2000.06, PHYC 2000.06

516 Geography
GEOG 3001.03: Landscape Ecology. 
Landscape reflect the interaction of natural and cultural processes. This course introduces the principles of ecology to landscape analysis. It explores relationships between environmental components in the landscape to inform community design and land use planning applications. 
PREREQUISITE: PLAN 3001.03 or GEOG 2001.05 or permission of the instructor. 
CROSS-LISTING: PLAN 3001.03

GEOG 3002.03: Reading the City. 
Any city reflects the history of its topography, cultural traditions, and design interventions. This course introduces the principles, theories, and methods of urban form analysis in the local urban context. Students explore the local urban environment to interpret what the city means, and how it comes to take the shape it does. 
FORMAT: Lecture/lab 3 or 4 hours 
CROSS-LISTING: PLAN 3002.03

GEOG 3005.03: Cities and the Environment. 
The contemporary landscape reflects a long history of human activities on the land and design and planning interventions through time. Civilizations rise and fall, often because of their degradation of the ecosystems that support them. This course examines the relationship of cities with the environment to enhance our understanding of landscape change, urban form and patterns as human settlements through the ages. 
FORMAT: Lecture/seminar 3 hours 
CROSS-LISTING: PLAN 3003.05

GEOG 3006.03: Reading the Landscape. 
Any landscape reflects in natural and cultural history. This course explores principles, theories, and methods of landscape interpretation. These approaches will be applied to community design problems in local landscapes. 
FORMAT: Lecture/seminar 3 hours 
CROSS-LISTING: PLAN 3006.03

GEOG 3110.03: Migration and Development. 
The purpose of this course is to explore and better understand the connections between migration and development in contemporary societies. Classes will introduce or further explore one main theme or issue, such as development- induced displacement, labor migration, and HIV/AIDS and migration. Each class will center on one or more discussion questions, exchange insights from relevant experiences of class participants or focus on a case study. 
FORMAT: Lecture/seminar 
CROSS-LISTING: INTD 3010.03

GEOG 3114.03: Environment and Development. 
This course will examine the interconnections between the natural environment and different forms of social and economic development with a specific focus on developing countries. Various perspectives will be used to analyze the links between environmental issues and poverty, inequality, wealth, economic globalization and the ways in which different cultures understand and interact with the environment. 
FORMAT: Lecture/seminar 
CROSS-LISTING: INTD 3114.03

GEOG 3165.03: Peoples and Cultures of the World: Selected Area Studies. 
This class examines a specific geographic and/or culture area. The class begins with background material on geography and history. Its focus is on the people therein, their social organization and political, economic, and cultural systems. How they relate to globalization and development will also be examined. Consult the Department for tactics which topics to be covered in a particular year. Approved with International Development Studies. 
FORMAT: Lecture 
PREREQUISITE: S OSA 1000Y/06, 1010X/06, 1100Y/06; 1200Y/06 
CROSS-LISTING: SOSA 3165.03 
EXCLUSION: SOSA 2370.03

GEOG 3210.03: Canadian Cultural Landscapes. 
This course explores the origins of one “signature” landscape in each province. Context with different geographies shaped distinctive regional histories, but at the same time, the story of each place is tied to the national narrative. These landscapes also illustrate how nature has been understood, used, and transformed since the fifteenth century. 
FORMAT: Lecture and discussion 
CROSS-LISTING: HIS 3210.03, CAN 3202.03

GEOG 3220.03: Coastal Communities in the North Atlantic. 
Coastal communities as a social-ecological type are examined in populations, and social structures (territorial, economic, occupational, political) as they have developed in response to particular ecological and social circumstances. Various perspectives which have been applied to coastal communities are examined with regard to the contributions they may make to understanding the dynamics of these communities. The focus on North Atlantic communities. 
FORMAT: Lecture 
PREREQUISITE: One of SOSA 1000Y/06, 1010X/06, 1100Y/06 or 1200Y/06. 
CROSS-LISTING: SOSA 3220.03

GEOG 3284.03: Living in Cities. 
2008 marked the first time in history that more of the global population (lived in cities than in rural areas. What perspectives to anthropologists and sociologists offer on cities and their inhabitants? This course explores the social dynamics that constitute the city and serves as a venue for students to explore and understand the ways in which different cultures understand and interact with cities and city-dwellers. It approaches the city both as a whole and through its constituent parts: people and places. Examples may be drawn from cities large and small, near and far - including Halifax. 
FORMAT: Lecture and seminar 
PREREQUISITE: One of SOSA 1000Y/06, S OSA 1050.06, SOSA 1100.06 SOSA 1200Y/06 FYP or PLAN 2005.06 
CROSS-LISTING: SOSA 3284.03

GEOG 3370.03: North American Landscapes. 
Landscapes are the product of human culture ordering nature for economic, social, political, religious, recreational, and artistic purposes. Landscape history analyzes and interprets the use and design of landscape features such as fields and woodlands, roads and waterways, settlements and buildings, towns and suburbs, and parks and cities. This class examines the use and meaning of the spatial environment among the various societies in North America from the sixteenth to the twentieth centuries. Among the topics are the meaning of areas for indigenous peoples, the occupation and settlement of colonial populations, transportation and colonial expansion, town planning, the politics of water and land in the West, preservation movements, scenic tourism, and the history and artistry of landscapes. The class welcomes non-history students with an interdisciplinary interest in issues regarding planning and design, cultural ecology, and the governance of resources. 
FORMAT: Lecture and discussion 3 hours 
CROSS-LISTING: HIS 3370.03

GEOG 3400.03: Human Health and Sustainability. 
This course examines the relationships between the health of populations and health determinants in the context of environmental sustainability. Weekly laboratory exercises will teach students how to use geomatics (GIS, GPS, and remote sensing technologies) and epidemiological tools can be used to assess the links between the health of human populations and the environment, and how to use these tools for environmental health research. 
FORMAT: Lecture 2 hours, Lab 1 hours 
PREREQUISITE: Must be a third year student or have permission of instructor 
CROSS-LISTING: ENV 3400.03

GEOG 3440.03: Geomorphology. 
Geomorphology is the quantitative study of Earth’s surface processes and landforms applies to geology, civil engineering, hydrology, and environmental management. We investigate slope stability, weathering and soils, sediment production, wind-driven and coastal environments, tectonic landforms, and river, glacial and periglacial processes. 
FORMAT: Lecture 3 hours, lab 3 hours including mandatory field trips 
PREREQUISITE: ENERGY 1000 and one other first year ENERGY course, 1100 recommended, or SCI 1302.01, or SCI 1302.11, or SCI 1302.27, or SCI 1310.11 or permission of the instructor AND completion or concurrent enrollment of a 1000-level mathematics class, a 1000-level physics class, and a 1000-level chemistry class. 
CROSS-LISTING: ENERGY 3440.03
GEOG 3500.03: Exploring Geographic Information Systems.
Geographic Information Systems (GIS), as a tool for the management of georeferenced data, have become indispensable for disciplines where location of objects and patterns of processes is important. GIS plays a significant role in a wide range of applications, from modeling, to analysis and problem-solving, to decision-making. The class is aimed at a broad base of potential users and draws on examples of the role of GIS in global climate change, mineral exploration, preservation of biodiversity, coastal zone management, resource depletion, and many other present and future environmental issues. The course material will be of interest to those studying environmental science, ecology, marine biology, oceanography, epidemiology, urban and rural planning, civil engineering, and any other field involving spatial data. Laboratory exercises emphasize the principles of raster and vector GIS, and the integration of databases and GPS (global positioning systems) data into GIS. Exercises done on the diversity of GIS applications in a number of application areas.

FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: Two years of university study or equivalent or instructor’s permission.
CROSS-LISTING: ERTH 3500, ERTH 5600, ENVS 3500.
EXCLUSION: Credit will only be given for one of GEOG 3500, SCIE 3600, ERTH 3500, ERTH 5600, or ENVS 3500.

GEOG 3633.03: Spatial Information and GIS in Ecology.
A hands-on approach to understanding and using spatial information, this class introduces students to Geographic Information Systems (GIS) as a tool to answer ecological questions. Together, students conduct a major field project, collecting data, creating maps using GIS, and interpreting spatial patterns, to address and apply ecological problem in ecology.

GEOG 4440.03: Geomorphology and Landscape Evolution.
Ripple-to mountain range-scale landforms evolve under predictable internal and external forces that are mediated by the physical and chemical properties of the rock. The purpose of this course is to provide a thorough examination of the development of landscapes by tectonics and surficial processes involving weathering, mass wasting, streams, and glaciation. The concepts of equilibrium, climate and vegetation change, and rock cycles are recurring themes throughout the course. Dating and thermochronology methods are discussed in the context of landscape change. Early classes viewpoints of landform development are contrasted with the latest numerical simulations of landscape evolution. The labs are mostly field-oriented with emphasis on Quaternary stratigraphy, describing and interpreting soils, glacial geomorphology, and geomorphometics.

FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: ERTH 1080 and one other 1st year ERTH course; 1090 recommended. Must be a 4th year Science student familiar with excel, or with instructor’s permission.
CROSS-LISTING: ERTH 4440.03.

GEOG 4530.03: Environmental Remote Sensing.
The goal of this class is to introduce students to the role of remote sensing as a technique to provide environmental and geologic information. Particular emphasis will be placed on examining the potential and limitations of remote sensing methods and data in this context. The lectures discuss the fundamentals of remote sensing with an emphasis on multi-spectral satellite systems. In the labs, students use computerized techniques of digital image enhancement and thematic information extraction to process images derived from optical, radar, and hyperspectral remote-sensing systems. The integration of remote-sensing information with GIS (Geographic Information Systems) is stressed in both the labs and lectures.

FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: ERTH 3500.03, ENVS 3500.03, or ENVS 3500.03, or SCIE 3600.03 or GEOG 3500.03.
CROSS-LISTING: ERTH 4530.03.

GEOG 4550.03: Introduction to Landscape Simulation.
We examine different approaches to numerical modelling of earth-surface processes such as erosion and landslides, melting permafrost, and braided rivers. Using class and/or individual projects as examples, the selection of variables, sensitivity testing, and methods for testing models against nature are discussed.

FORMAT: Lecture 3 hours, lab
PREREQUISITE: ERTH 3440.03, MATH 1010 or 1400, PHYC 1260.03, 1290.03 (Y) and three courses at the 3000 level in the physical sciences (chemistry, earth science, physics) or with consent of instructor.
CROSS-LISTING: ERTH 4550.

GEOG 4520.03: GIS Applications to Environmental and Geological Sciences.
Note: This class is not offered every year. Please consult department in the spring for further information.
Humanistic Studies in Science

Attention is drawn to the following courses, offered in several departments. All of these courses are concerned with the humanistic aspects of scientific thought and its development. For complete course descriptions please consult the appropriate department listing in this calendar.

NOTE: Not all courses are offered every year. Please consult the current timetable for this year’s offerings.

History of the Sciences
- BIOL 3503.06, HSTC 2200.06, SCIE 2000.06: Introduction to the History of Science
- BIOL 4664.03/OCEA 4331.03/SCHS 3073.03/HIST 3311.03: History of Marine Sciences

Philosophy of the Sciences
- PHIL 3420.03, BIOL 3580.03: Philosophy of Biology
- PHIL 2560.03: Minds & Machines: Introduction to cognitive Science
- PHIL 2660.03 Logic: Understanding Scientific Reasoning
- BIOL 3601.03: Nature Conservation
- PHIL 2130.03: Logic
- PHIL 3051.03: Epistemology
- PHIL 3670.03: Philosophy of Science

Integrated Science Program

Location: (See below for locations of the offices of the Director, Student Coordinator and Administrative Assistant)

Telephone: (902) 494-2765
Fax: (902) 494-1123
Email: disp@dal.ca
Website: http://disp.science.dal.ca

Administrative Assistant
Ms. Jackie White
Faculty of Science, Life Sciences Centre, Room 827
Dalhousie University
PO Box 15000
Halifax, NS B3H 4R2
Tel: (902) 494-2765
Fax: (902) 494-1123
Email: DISP@dal.ca

Director and Program Coordinator
Dr. Cindy Staicer, PhD (UMass/Amherst)
Biology Department, Life Sciences Centre, Room 7130
Dalhousie University
PO Box 15000
Halifax, NS B3H 4R2
Tel: (902) 494-3533
Fax: (902) 494-3736
Email: Cindy.Staicer@Dal.ca

Student Coordinator
Prof. Milton Graves, MSc (Dalhousie)
Earth Sciences Department, Life Sciences Centre, Room 2045
Dalhousie University
PO Box 15000
Halifax, NS B3H 4R2
Tel: (902) 494-5016
Fax: (902) 494-6899
Email: Milton.Graves@Dal.ca

Integrated Science Program (New sections to completely replace old sections)

I. Introduction

Dalhousie’s Integrated Science Program is an alternative and unique way for a serious, well-prepared student to complete the first year of a BSc. In addition to learning the core material of several first-year science subjects, students gain an interdisciplinary perspective, develop transferable skills, and conduct research, all in their first year. The goals of the program are:

1. To engage students in the process of scientific inquiry and provide them with hands-on experience in scientific research skills.
2. To provide sufficient background to enter second-year courses in the specific disciplines included in the program.
3. To point out the interrelationships among the science disciplines.
4. To indicate how the history and philosophy of scientific thought helps us to understand science.
5. To show the relevance of science in students' lives and the links between science and society.

This first-year program exposes students to a broader range of science disciplines than is possible in regular courses and does so in an integrated manner. Students learn from a team of instructors from different departments in the Faculty of Science. Instructors meet weekly to coordinate their teaching efforts and track learning outcomes. While teaching the material from regular first-year science courses, Integrated Science instructors highlight the natural links among their disciplines and help students apply the scientific method and quantitative techniques to topics and questions across the sciences.
Integrated Science students are members of a small cohort (minimum 70-80) of BSc students who take their courses, field trips and labs together. The course schedule varies each week, to see the time available efficiently for lectures, labs, and field-trips, and to allow flexibility to link particular topics when appropriate. The flexible schedule also allows field trips to be scheduled without interfering with other courses. The course takes field trips approximately weekly throughout the first six weeks of fall term.

A companion course, Ethics in Science, provides an introduction to ethical questions that arise in the practice of science and uses examples that link to topics studied in the science components of the program. Regular instruction, practice, and feedback in writing are integrated across Ethics in Science and the Writing in Science component of Integrated Science. Students develop scientific writing skills through formal writing assignments in the fall and a series of research project assignments in winter.

Emphasis on scientific research methods and communication skills, along with a broad introduction to science, makes Integrated Science an excellent foundation for most Honours or Combined Honours BSc, or Major or Double Major BSc degrees. The broader exposure to science is helpful for students who are interested in many sciences and want to see what different subjects have to offer. Integrated Science is also excellent preparation for professional graduate programs, such as Law or Medicine. Integrated Science candidates should be highly-motivated and have a strong interest in science. They should find the idea of being immersed in science very stimulating; they should want to learn to think across the discipline boundaries as well as to master discipline-specific material at the first-year level; they should be enthusiastic about being part of a small cohort of students intent on learning how to work and think like scientists; they should want to be cooperative and effective team members; they should have good study, work, and time-management skills; and they should welcome challenges to work hard, to think critically, and to solve problems.

Students wishing to enter this program normally must have a minimum Grade 12 average of 80%, with a minimum of 80% in Mathematics and 70% English, and a minimum of 70% in Grade 12 Chemistry plus Grade 12 Biology or Grade 12 Physics. The average high school marks of incoming Integrated Science students is 89%.

Integrated Science students can expect a higher course load (more credits) and heavier workload than regular first-year BSc students. A heavier workload is unavoidable considering the larger number of disciplines studied, the integrated writing course, and the research project component. The workload of Integrated Science is managed, however, as students have less work than if taking all of the equivalent components as separate courses. Also, assignments and tests are spread out as evenly as possible throughout the week and term. Students should note that the heavier workload is excellent preparation for higher workloads in second year of the BSc.

Option A (Physical Sciences and Engineering) is recommended preparation for professional science BSc degrees (e.g., Atmospheric Science, Chemistry, Earth Sciences, Physics and Atmospheric Science) or Engineering degrees, because this option includes a full year of Calculus (MATH 1000/1010) and full year of a calculus-based Physics course with content needed for Engineering (PHYC 1190/1290). For BSc degrees or minors in Economics, Mathematics, or Statistics, students need a full year of Calculus, so could take Option A or B.

Option B (Biomedical Sciences) is intended for students who are mainly interested in the life sciences but want to keep their options open by taking a full year of Calculus (MATH 1000/1010) and full year of Physics for the Life Sciences (PHYC 1300). Option B is recommended preparation for BSc degrees in Biology, Biochemistry and Molecular Biology, Environmental Science, Microbiology and Immunology, Marine Biology, Medical Science, Neuroscience, Ocean Science, or Psychology. This option is intended for life and medical sciences students who want a more normal workload and typical selection of courses, or want room in their schedule to take an elective in place of Physics. Option C is recommended for students interested in Pharmacy. Any option will provide a solid foundation for professional degrees, such as Law or Medicine.

III. Choosing an Integrated Science Option

The program includes SCE 1505.18 (the core Integrated Science component), a companion, half-credit humanities course, PHEL 1010, and one to three science co-requisites. The schedules of SCE 1505 plus PHEL 1010 are coordinated with the timetable of regular science courses to ensure that first-year Chemistry, Mathematics, and Physics will fit into student schedules. A student can choose one of three Integrated Science Options in which to register. Each incorporates a different suite of co-requisite science courses and is designed to prepare students for a range of degree programs at Dalhousie. Contact the Program Directors to discuss other possibilities.

<table>
<thead>
<tr>
<th>Option A: Physical Sciences and Engineering</th>
<th>Option B: Biomedical Sciences</th>
<th>Option C: Life Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCE 1505.18</td>
<td>PHEL 1010 (MATH 1000 or 1215)</td>
<td>PHEL 1010 (MATH 1000)</td>
</tr>
<tr>
<td>Core co-requisite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCE 1111.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math (Calculus)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCE 1010.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chem (Chemistry)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCE 1505.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core co-requisite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 1011.03 (or MATHT 1215)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math (Calculus)</td>
<td>CHEM 1011.03</td>
<td></td>
</tr>
<tr>
<td>SCE 1010.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phys (Physics)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCE 1010.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core co-requisite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYC 1190.03 (or PHYS 1190)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phys (Physics)</td>
<td>PHYC 1190.03</td>
<td></td>
</tr>
<tr>
<td>SCE 1010.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core co-requisite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 1060.03 (or PSYO 1011)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stat (Statistics)</td>
<td>STAT 1060.03</td>
<td></td>
</tr>
<tr>
<td>SCE 1010.03</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The flexible schedule also allows field trips to be scheduled without interfering with other courses. The course takes field trips approximately weekly throughout the first six weeks of fall term.

First-year pre-requisites. All three options fulfill several first-year requirements for the BSc. The full-year Psychology component of SCE 1505 fulfills the Social Science requirement. The Statistics component of SCE 1505 plus one Calculus course (MATH 1000 or 1215) fulfills the full-year of Mathematics requirement. The integrated Writing in Science component of SCE 1505 and the companion Humanities course (PHEL 1010) together compose a full-year Writing Requirement Course at Dalhousie University. The Integrated Writing in Science writing course serves in lieu of ENGL 1000 for entry to the School of Pharmacy at Dalhousie University. Note that PHEL 1010 also satisfies half of the full-credit Humanities or Language requirement at Dalhousie; before they graduate, students will need to take another half-credit course in a Humanities or Language.

Integrated Science students can expect a higher course load (more credits) and heavier workload than regular first-year BSc students. A heavier workload is unavoidable considering the larger number of disciplines studied, the integrated writing course, and the research project component. The workload of Integrated Science is managed, however, as students have less work than if taking all of the equivalent components as separate courses. Also, assignments and tests are spread out as evenly as possible throughout the week and term. Students should note that the heavier workload is excellent preparation for higher workloads in second year of the BSc. Some of a student’s actual workload will depend on the Option (science co-requisites) selected to complete the first-year program.

Option A (Physical Sciences and Engineering) is recommended preparation for physical science BSc degrees (e.g., Atmospheric Science, Chemistry, Earth Sciences, Physics and Atmospheric Science) or Engineering degrees, because this option includes a full year of Calculus (MATH 1000/1010) and full year of a calculus-based Physics course with content needed for Engineering (PHYC 1190/1290). For BSc degrees or minors in Economics, Mathematics, or Statistics, students need a full year of Calculus, so could take Option A or B.

Option B (Biomedical Sciences) is intended for students who are mainly interested in the life sciences but want to keep their options open by taking a full year of Calculus (MATH 1000/1010) and full year of Physics for the Life Sciences (PHYC 1300). Option B is recommended preparation for BSc degrees in Biology, Biochemistry and Molecular Biology, Environmental Science, Microbiology and Immunology, Marine Biology, Medical Science, Neuroscience, or Psychology. This option is intended for life and medical sciences students who want a more normal workload and typical selection of courses, or want room in their schedule to take an elective in place of Physics. Option C is recommended for students interested in Pharmacy. Any option will provide a solid foundation for professional degrees, such as Law or Medicine.

On their transcripts, students receive a single letter grade for SCE 1505 because the content and skills practiced are integrated across these components (i.e., SCE or AP credits cannot be used in lieu of Biology, Earth Science, Philosophy, Psychology, or Stats courses). On their transcripts, students receive a single letter grade for SCE 1505 and separate grades for their other courses. A breakdown of subject marks in SCE 1505 is provided, upon request, for the purpose of applying for scholarships or professional programs or transferring other universities.
III. Course Description

SCIE 1505X/Y.18: Integrated Science.
This program provides comprehensive first-year preparation for science major or honours degrees and includes a full-year writing course and research project in the sciences. Concepts and techniques are taught in Biology, Earth Science, Psychology, and Statistics and are linked to material taught in separate Chemistry, Mathematics, and Physics courses.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Writing requirement; Lecture approx. 9 hours/lab and other activities approx. 5 hours.

CROSS-LISTING: BIOL 1010.03/1011.03 or BIOL 1020.03/1021.03; ERTH 1080.03; PSYO 1011.03/1012.03 or PSYO 1021.03/1022.03; SCIE 1111.03; STAT 1060.03.

CO-REQ: HIST 1200.05 and CHEM 1010.03 or CHEM 1020.03 or MATH 1000.03 or MATH 1008.03 or MATH 1215.03; STAT 1060.03.

Recommended: PSYO 1011.03/1012.03 or PSYO 1021.03/1022.03; SCIE 1111.03; STAT 1060.03.

Marine Biology

Location: Biology Department, Life Sciences Centre
1555 Oxford Street
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3822
Fax: (902) 494-3736
Website: http://marine.biology.dal.ca

Dean
Moore, C., BA (Hons), PhD (Cambridge), Professor (Psychology)
Undergraduate Program Co-ordinator
Pinder, A. (pinder@dal.ca) (494-3822)

Program Advisors
Gues, G. (902-448-440) (gues@dal.ca), 20 credit majors
Herbininger, C. (902-448-1297) (christopher.herbininger@dal.ca), Regular Honours
McAllister-Irwin, N. (902-361-146) (nancy.mcallister-irwin@dal.ca), Co-op Academic Advisor, Honours and 20 credit majors
Pinder, A. (902-3822) (alan.pinder@dal.ca), Regular Honours
Scheibling, R. (902-226-206) (robert.scheibling@dal.ca), 20 credit majors
Schmidt, A. (902-448-1298) (allison.schmidt@dal.ca), 20 credit majors
Worm, B. (902-448-1293) (boris.worm@dal.ca), 20 credit majors

I. Introduction

The Marine Biology Program is an integral part of the Biology department at Dalhousie. Students obtain a basic grounding in Biology in their first two years, and use their third and fourth years to study in greater depth the diversity, ecology, physiology, and other aspects of marine animals and plants. Marine Biology students often also take courses in the biology, chemistry or physics of the ocean, offered through the Oceanography department. A Combined Honours in Marine Biology and Oceanography is available. "Ocean studies" is an area of special emphasis for Dalhousie University, and thus many faculty members have active research programs in marine science. In addition, many marine scientists at local research institutions, including the Bedford Institute of Oceanography and the Institute for Marine Biosciences are affiliated with us, and serve as supervisors of our Honours and graduate students. Our students thus participate in research on a broad range of marine-related topics; examples can be viewed on our website.

The Biology department is located adjacent to the sea in the Life Sciences Centre. All eight floors have running sea water, and we have a 15m pool tank and a 10m deep tower tank. Within a 30 km radius there are salt marshes, rocky shores, estuaries, and sand beaches for field work.

We offer Honours and 20 credit major degree programs in both a regular and Co-operative Education format in Marine Biology. The 20 credit major degree prepares students for technical positions in government laboratories, research institutes, scientific consultants, and aquaculture facilities. The Honours degree requires more Marine Biology credits, a GPA of 3.0 or higher, a research project and thesis in the final year, and should be taken by students wishing to continue on to graduate studies. The Co-operative Education degree provides an integrated program of eight academic terms with three to four workterms in industry, government or university laboratories, conservation, etc. The workterms, each of four months duration, enable students to apply their knowledge of marine biology while providing them with work experience for making informed career choices. The Co-op degree normally takes four and 1/3 years to complete.

High School preparation

Students from Canadian high schools are recommended to take the following subjects in high school: Biology, Chemistry, Pre-calculus Math, English, plus Physics (optional) or other acceptable courses (see list in the Admissions section of the undergraduate calendar) and obtain an overall average of 75%, with 65% or higher in English and Math.

Marine Biology 521
II. Degree Programs

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar.

A. Co-operative Education BSc (20 credit) Program in Marine Biology, Honours and Major

Co-op Academic Advisor in Marine Biology: N. McAllister-Irwin
Email: nancy.mcallister-irwin@dal.ca

Co-operative Education in Science (Science Co-op) is a program where academic study is combined with paid career-related work experience. Students alternate three workterms throughout their academic study terms and graduate with a Bachelor of Science Co-op. Science Co-op enables students to apply their knowledge directly while providing them with work experience that assists in making educated career choices. Students apply to join Science Co-op typically before their second year of study.

See the “Co-operative Education in Science” section of this calendar, or http://biology.dal.ca/honours/ for information on Science Co-op such as Science Co-op requirements, eligibility, how to apply, deadlines and other related information.

Marine Biology Work-Study Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AT</td>
<td>AT</td>
<td>Four</td>
</tr>
<tr>
<td>2</td>
<td>AT</td>
<td>AT</td>
<td>WT1</td>
</tr>
<tr>
<td>3</td>
<td>AT</td>
<td>WT2</td>
<td>AT</td>
</tr>
<tr>
<td>4</td>
<td>WT3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

AT = Academic Term
WT = Work Term

The academic program and required courses for Co-op students are essentially the same as those for the non-Co-op program (listed below). Students in the third and fourth year of their Science Co-op program will have difficulty taking fall-year courses during the academic year because of their work terms.

To ensure employment opportunities, Science Co-op students may include some courses (or minor) in business, computer science, environmental science, microbiology, or statistics as employers are often seeking expertise in these areas.

ADMISSION to the Marine Biology Science Co-op program should be sought in winter of first year. Applications must be submitted by August 1st.

Science Co-op application forms for Marine Biology are available from the Science Co-op website: http://www.sciencecoop.dal.ca. A limited number of students will be accepted into the programs each year to reflect the current job market. Students must be eligible to work in Canada. Students wishing to apply for the Honours and Major Co-op programs should have at least an overall average of 3.00 or higher from all first-year courses and a grade of B+ in BIOL 1010.03/MARI 1074.03 and BIOL 1020.03/MARI 1075.03 or equivalent. Successful applicants will be notified in late August before the beginning of the fall term.

For further information, please see http://www.sciencecoop.dal.ca.

B. BSc (20 credit) Honours in Marine Biology

Program Advisor:
A. Pinder (494-3822) alan.pinder@dal.ca.

Honours students must take a minimum of nine and a maximum of 11 credits in their honours subject (Marine Biology/Biology) above the 1000 level in addition to the general rules of the College of Arts and Science (see degree requirements in the College of Arts and Science section of this calendar).

Departmental Requirements

Admission to and graduation from the Honours program requires a B+ average (3.3) in the core program courses at the time of application, with no grade below a C. Furthermore, students must also have a cumulative B average (3.0) at the time of application and at graduation.

Students interested in the Honours program must do the following: At the end of their third year, students must have identified and gained the support of a Dalhousie or external faculty member who will supervise their thesis research. If students choose an external supervisor, they must make certain that the supervisor meets the basic criteria as identified by the honours committee (details about external supervisor suitability can be found on the honours homepage - see link below). With the supervisor’s input, the student must then draft a thesis proposal and submit it to the honours committee for approval. This proposal must be signed by both the student and the supervisor and submitted by April 20th. Students who do not meet this deadline will not be permitted to enrol in the Honours course (BIOL/MARI 4900). For students seeking a Co-op Honours degree, contact a Co-op advisor for details about proposal submission. For information about who can serve as an honours supervisor, contact an honours advisor.

Regarding the specifics of the thesis proposal, it should: (i) very briefly review the background literature relevant to the student’s research topic, (ii) present the specific questions, with clearly articulated hypotheses and predictions (if warranted), that will be addressed by the research, and (iii) present an overview of the methods that will be used to address these questions, hypotheses, and predictions. The proposal should be 1-2 pages in length and must be signed by both the student and supervisor. Additional information about the proposal, and about the Honours program in general, can be found on the departmental website: http://biology.dal.ca/honours/.

Core Program Courses required in the Marine Biology Concentrated Honours Program

1800 level
- BIOL 1010.03 or 1020.03 (minimum grade of C+)
- BIOL 1011.03 or 1021.03 (minimum grade of C+)
- CHEM 1010.03 and CHEM 1020.03
- COMM 1002.03 (recommended for students not fully familiar with microcomputers, but not required)
- MATH 1009.03 or MATH 1213.03
- MATH/STAT 1060.03
- DSP (SCIE 15X5) (minimum grade of C+)

2000 level
- BIOL 2001.03
- BIOL 2006.03
- BIOL 2016.03
- BIOL 2021.03
- BIOL 2040.03
- BIOL 2040.03
- OCEA 2000.06 or OCEA 2001.03 and OCEA 2020.03
- MATH/STAT 2030.03

At the 3000 level and 4000 level, students doing a concentrated Honours degree in Marine Biology must complete three full credits from the following list:

BIOL/MARI 3042.03 Molecular Ecology
BIOL 3084.03 Molecular Evolution
BIOL/MARI 3103.03 Resource Ecology
BIOL/MARI 3167.03 Ecology and Evolution of Fishes
MARI 3074.03 and MARI 3075.03 Physiology of Marine Animals, Parts I & II
BIOL/MARI 3101.03 Marine Biology
BIOL/MARI 3221.03 Diversity of Algae
BIOL/MARI 3501.03 Invertebrate Biology
MARI/MARL 3690.03 Aquaculture
BIOL/MARI 3626.03 Field Studies of Marine Mammals or BIOL/MARI 4060.03 Marine Mammalogy
BIOL/MARI 1761.03 Marine Ecology
BIOL/MARI 1762.03 Marine Biology

A half credit MARI 4903.03 Marine Biology course

In addition, students must complete an Honour’s Thesis: MARI 4900 X/500 or MARI 4901.03 and MARI 4902.03.

In addition, students should complete at least another two full credits in Marine Biology or Biology with strong Marine emphasis to achieve the minimum of nine credits in their honours subject (Marine Biology/Biology) above the 1000 level.
Other Biology courses with some marine emphasis: BIOL 3042.03, 3102.03, 3326.03, 3613.03, 4061.03, 4063.03, 4074.03, 4661.03. Please speak with an advisor for a more comprehensive list of acceptable courses.

C. Honours Co-op BSc in Marine Biology

Program Advisor: N. McAllister Irwin

Departmental Requirements

Same as for regular Marine Biology Honours as above in addition to the following:

- SCIE 2800.00 (Science Co-op Seminar Series)
- MARI 8891.00, 8892.00, 8893.00, 8894.00 (Co-op Work terms)

Co-op students will normally do their Honours research in the summer of their fourth year or in their fifth year and should arrange this with the Honours co-op advisor. To obtain the Honours research and thesis credits, co-op students normally attend and register for MARI 4901.03 in the Winter term of their fourth year and MARI 4902.03 in the Fall term of their fifth year to accommodate their workterms.

If students wish to be supervised by someone external to the department, they must consult with the honours advisor, prior to starting the research, to determine supervisor and project's eligibility.

D. Combined Honours BSc in Marine Biology and Another Subject

Students planning a Combined Marine Biology program should consult with a Marine Honours advisor before registering for their third year courses.

Departmental Requirements

Same as for regular Marine Biology Honours as above in addition to the following:

If Marine Biology is chosen as the primary subject in Combined Honours degree, at least six and no more than nine credits in Biology and Marine Biology beyond the 1000 level including the following core program courses:

Core Program Courses required in the Combined Honours in Marine Biology:

1000 level
- BIOL 1010.03 or 1020.03 (minimum grade of C+)
- BIOL 1011.03 or 1021.03 (minimum grade of C+)
- CHEM 1011.03 and CHEM 1012.03
- MATH 1000.03 or MATH 1213.03
- MATH/STAT 1060.03
- OR
- DISP (SCIE 15XX) (minimum grade of C+)

2000 level
- BIOL 2003.03
- BIOL 2040.03
- BIOL 2060.03
- BIOL 2080.03
- BIOL 2090.03
- BIOL 2400.03

At the 3000 level and 4000 level, students doing a Combined Honours degree in Marine Biology must complete two full credits from the following list:

- BIOL/MARI 3042.03 Molecular Ecology
- BIOL 3046.03 Molecular Evolution
- BIOL/MARI 3063.03 Resource Ecology
- BIOL/MARI 3067.03 Ecology and Evolution of Fishes
- MARI 3074.03 and MARI 3076.03 Physiology of Marine Animals, Parts I & II
- BIOL/MARI 3101.03 Microbial Ecology
- BIOL/MARI 3221.03 Diversity of Algae
- BIOL/MARI 3301.03 Invertebrate Biology
- BIOL/MARI 3302.03 Aquaculture
- BIOL/MARI 3620.03 Field Studies of Marine Mammals or BIOL/MARI 4060.03 Marine Mammalogy
- BIOL/MARI 3761.03 Marine Ecology
- a half credit MARI SEASIDE course

In addition, students must complete an Honours Thesis:
- MARI 4900 X/Y 06 or MARI 4901.03 and MARI 4902.03

Please note: A Combined Honours in Marine Biology and Biology is not offered.

E. BSc or BA (20 credit) Major in Marine Biology

Program Advisors: R. Scheibling (494-2286) robert.scheibling@dal.ca
B. Wasmund (494-2478) berta.wasmund@dal.ca
G. Gass (494-6445) gillian.gas@dal.ca
A. Schmidl (494-1630) alison.schmidl@dal.ca

Major students are required to take a minimum of seven and a maximum of 10 credits above the 1000 level in their major subject (Marine Biology) including four credits above the 2000 level, in addition to the general rules for Majors which are listed in the degree requirements section of the College of Arts and Science regulations in this calendar.

Courses required in Major

1000 level
- BIOL 1010.03 or 1020.03 (C+ or better)
- BIOL 1011.03 or 1021.03 (C+ or better)
- CHEM 1011.03 and CHEM 1012.03
- COMM 1502.03 (recommended for students not fully familiar with microcomputers)
- MATH 1000.03 or MATH 1213.03
- STAF 1064.03
- OR
- DISP (SCIE 15XX) (C+ or better)

2000 level
- BIOL 2003.03
- BIOL 2040.03
- BIOL 2060.03
- BIOL 2080.03
- BIOL 2090.03
- OR
- NSCI 2000.06

1000 and 2000 level
- Minimum of four full credits, or an equivalent number of half credits, to be selected from Marine Biology (MARI) courses or any “marine emphasis” field course offered by our summer field course Institute, SEASIDE, or any other recognized field course institution in Canada or overseas.

F. BSc (20 credit) Major Co-op in Marine Biology

Departmental Requirements

Same as for regular Major in Marine Biology as above in addition to the following:
- MARI 8891.00, 8892.00, 8893.00, 8894.00 (Co-op Work terms)

G. BSc (20 credit) Double Major in Marine Biology

Department Requirements

1000 Level
- BIOL 1010.03 and BIOL 1011.03 (or BIOL 1020.03 and 1021.03) and CHEM 1011/1012.03, MATH 1000.03 or MATH 1213.03, MATH/STAT 1060.03 or DISP (SCIE 15XX) (with a minimum grade of C+)

2000 Level

3000 and 4000 Level
- Minimum of 2.5 full credits at or above the 3000 level from Marine Biology (MARI) courses

Please note: A double major in Marine Biology and Biology is not offered.
H. Minor in Marine Biology

Students in other 20-credit degree programs may choose to include a Minor in Marine Biology in their program. Requirements are outlined in the College of Arts and Science: Minor section of this Calendar starting on page 129.

I. Minors available to students in Marine Biology

Minor programs allow students to develop subject specialties in addition to their major or honours subjects. Minors in other subjects are normally added to a fourth-year major or concentrated honours program (including co-op programs).

Students in a 20-credit BSc program in Marine Biology may choose to include a Minor selected from the list of approved Minors beginning on page 132 in this Calendar. Note that courses toward your Major or Honours program cannot be used to fulfill the requirements of a Minor program.

J. BSc/Engineering or BA/Engineering Concurrent Programs

Students will normally complete the requirements for a 15 credit BSc or 15 credit BA, and the first two years of engineering studies leading to the Diploma in Engineering. The concurrent program can be completed in three years. Details are provided in the College of Arts and Science Degree Requirements on page 129 of the calendar.

K. Diplomas, Certificates, and Language Proficiency Certificates

A number of certificate programs are available to students enrolled in an Honours, Major or Minor program in Marine Biology. Please see page 141 for a full listing of available certificates. Note: Courses counted toward a Major Honours or Minor program may also be used to fulfill the requirements of a Certificate.

III. Course Descriptions

The normal entry requirement for upper level courses in Biology and Marine Biology is a grade of B- or better in BOTH terms of first year Biology or in DISP. Students with extenuating circumstances may appeal to the departemental curriculum committee.

NOTE: Not all courses are offered every year. Please consult the current timetable for this year’s offerings.

MARI 3003.03: Introduction to Field Oceanography

See course description for OCEA 3003.01 in the Oceanography section of the calendar.

MARI 3042.03: Molecultural Ecology

We survey techniques of molecular genetic analysis and consider how they can be used to identify species, populations, sexes, individuals and family relationships, and study population attributes such as historical dispersal, contemporary connectivity, mating behaviour and effective population size. Evaluation is based on assignments, a test and a final exam.

PREREQUISITE: A grade of B- or better in each of BIL 2001.03, BIL 2401.03, and BIL 2001.05

CROSS-LISTING: BIL 3042.03

EXCLUSION: BIL 4042.03

MARI 3063.03: Resource Ecology

This course considers the ecology, utilization, and management of natural resources in fisheries, wildlife and forest management, agriculture and aquaculture. Topics include population dynamics, community interactions, and ecosystem support of resources as well as the history of resource utilization, practices of controlling production, pests, and predators, and sustainable management strategies.

FORMAT: Lecture 2 hours, tutorial 2 hours

PREREQUISITE: BIL 2001.03 or (BIA 3001.05), MATH 1000.03 or (MATH 1213.03 or DISP), STAT 1000.03 (or DISP)

CROSS-LISTING: BIL 3063.03

MARI 3067.03: Ecology and Evolution of Fishes

This course will examine several topics on the ecology and evolution of marine and freshwater fishes. Topics will include systematic, functional morphology, evolutionary ecology, behavior, life history strategies, population biology, fisheries science, and conservation biology.

FORMAT: Lecture 3 hours, lab 2.5 hours

PREREQUISITE: BIL 2003.03, BIL 2006.03 or BIOA 3001.03

CROSS-LISTING: BIL 3067.03

MARI 3074.03: Physiology of Marine Animals, Part I

Animals in a marine environment are quite different from those found in air or fresh water, but the “physiological principles” are similar. This course deals with the same principles as BIL 3079, but emphasizes the special characteristics of marine animals and the techniques necessary to study them in laboratories.

FORMAT: Lecture 3 hours, Lab 3 hours

PREREQUISITE: BIL 2003.03 and BIL 2020.03 or BIOA 2001.03

EXCLUSION: BIL 3079.03, BIOA 3003.03

MARI 3076.03: Physiology of Marine Animals Part II

Animals in a marine environment are quite different from those found in air or fresh water, but the “physiological principles” are similar. This course deals with the same principles as BIL 3079, but emphasizes the special characteristics of marine animals and the techniques necessary to study them in laboratories.

FORMAT: Lecture 3 hours, Lab 3 hours

PREREQUISITE: BIL 2003.03 and BIL 2020.03 or BIOA 2001.03

EXCLUSION: BIL 3079.03, BIOA 3003.03

MARI 3101.03: Microbial Ecology

Lectures on the ecology of bacteria, viruses, protists. Community structure, food web nutrient cycling, biochemical cycles, competition, succession and symbiosis are discussed with examples from marine, fresh water and soil habitats. There is an emphasis on marine organisms.

FORMAT: Lecture 3 hours

PREREQUISITE: BIL 2004.03 or MUL 2100.03, and BIL 2006.03 or BIOA 3001.03

CROSS-LISTING: BIL 3101.03

MARI 3221.03: Diversity of Algae

This course is a taxonomic introduction to the major algal groups (macrophytic and microscopic) with an emphasis on the marine seaweeds. Basic taxonomic differences are covered, along with an introduction to macrophytic ecology, human uses and symbioses. Laboratory sessions focus on morphology and reproduction.

PREREQUISITE: BIL 2004.03 or equivalent

CROSS-LISTING: BIL 3221.03

EXCLUSION: BIL 3101.03, MARI 3121.03

MARI 3301.03: Invertebrate Biology

A survey of the diversity, ecology, and evolutionary history of the major invertebrate groups. Lectures will emphasize phylogenetics and diversity of body plans. Labs will emphasize identification and anatomy through field trips to local sites, computer assisted learning, and group projects to construct food webs for local invertebrate communities.

FORMAT: Lecture 3 hours, Lab 3 hours

PREREQUISITE: BIL 2001.03

CROSS-LISTING: BIL 3301.03

EXCLUSION: BIL 3031X/303Y

MARI 3600.03: Aquaculture

Through lectures, laboratories and field trips (additional fees apply), this course offers an introductory overview of aquaculture, the culturing of aquatic plants and animals. The following topics are covered with both a land-based and global perspective: overview, physico-chemistry of water, engineering, culture techniques, health, nutrition, genetics, environmental and socio-economic considerations.

FORMAT: Lecture 3 hours, Lab 3 hours, Field trips (2 Sundays)

PREREQUISITE: BIL 2003.03

CROSS-LISTING: BIL 3600.03

MARI 3623.03: Applied Coastal Ecology

Impacts of anthropogenic inputs on the structure and function of coastal ecosystems. Through field trips and other coursework, students examine ecosystem health, e.g., mesocosm communities on rocky shores, in seagrass beds on sedimentary shores, and learn basic experimental designs, principles of environmental assessment and monitoring, and coastal habitat remediation. NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seasonal science.ca. Not offered every year.

FORMAT: Field and Lab

PREREQUISITE: BIL 2003.03 and BIL 2006.03 or BIOA 3001.03

CROSS-LISTING: BIL 3623.03, INVS 3623.03
MARI 3626.03: Field Studies of Marine Mammals. Hands-on experience conducting field research on underwater mammals. Students are introduced to the techniques of photographic identification of individuals. On a several-day field trip, students conduct research on the ecology of bottlenose dolphins in the Bay of Fundy. Grading is pass/fail. NOTE: Offered in summer through SEASIDE. A student must be registered in a Biology or Marine Biology program, have completed a minimum of three full credits in Biology above the 1000 level and have a minimum cumulative GPA of 2.4 or permission of the instructor. CROSS-LISTING: BIOL 3626.03

MARI 3627.03: Biology and Conservation of Sharks, Skates and Rays. This course offers a combination of lectures, labs, and field projects that explore the role of sharks and rays in marine ecosystems. Students are introduced to current methods used in shark research, such as tagging, and learn about the role of sharks in ecosystems. NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca. FORMAT: Lectures, labs, and field trips. PREREQUISITE: BIOL 2003.03 or BIOL 3001.03 and BIOL 3003.03

MARI 3632.03: Applied Field Methods in Fish Ecology. Practical experience conducting field research on fishes with field trips to streams and shallow water marine/freshwater habitats. Techniques include collecting fish, designing and conducting surveys, studying behavior, measuring phenotypic variability, quantifying temporal and spatial variation, planning for statistical analysis, and weighing tradeoffs between data quality, quantity, costs and ethical/environmental considerations. NOTE: Offered in summer through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca. FORMAT: Field intensive, lecture and lab. PREREQUISITE: BIOL 2003.03 or BIOL 3001.03 or STAT 1060.03 or PSYO/NESC 2160.03 (or equivalent)

MARI 3680.03: Scientific Diving Methods for Marine Ecology. This course introduces students that are certified divers to the practice of scientific diving in various marine habitats to demonstrate the application of standard sampling and analysis techniques of photographic identification of individuals. On a several-day camping trip, students observe marine mammals from vehicle-watch boats and conduct research projects. NOTE: Offered through SEASIDE. An auxiliary fee is charged to cover field expenses. For dates, times and special registration procedures, see seaside.science.dal.ca. FORMAT: Lab and field intensive PREREQUISITE: BIOL 2003.03 or BIOL 3626.03 or BIOL 3632.03 or PSYO 2160.03, STAT 1060.03 (or equivalent) CROSS-LISTING: BIOL 3626.03

MARI 3761.03: Marine Ecology. Building upon an understanding of ecological and evolutionary principles, and a familiarity with the major marine invertebrates and algal taxa, this course examines patterns and processes in the population, community and ecosystem levels that determine the diversity and distribution of life in the sea. FORMAT: Lectures/lab. PREREQUISITE: BIOL 2003.03 or BIOL 3001.03, or BIOL 3003.03, or OCEA 2000/2016 or OCEA 2011.03 and OCEA 2021.03 CROSS-LISTING: BIOL 3761.03 RESTRICTION: This class is restricted to 3rd and 4th year students.

MARI 3800.03: Experiential Learning. Experiential Learning recognizes the learning experience relevant to the program outside the scheduled curriculum. Students are responsible for drafting a learning agreement between the course coordinator and supervisor to specify learning outcomes, activities designed to accomplish these outcomes, a quantifiable assessment strategy and a timetable. NOTE: To register in this course, a student must first find a suitable supervisor and sign a learning agreement between the course coordinator, the student and the supervisor. FORMAT: A minimum of 84 hours of work experience should be documented. For example students could spend 8-10 hours throughout a regular term or complete the 84 hours in a more concentrated period during the summer. Grading is pass/fail. PREREQUISITE: Students must be registered in a Biology or Marine Biology program, have completed a minimum of three full credits in Biology above the 1000 level and have a minimum cumulative GPA of 2.4 or permission of the instructor. CROSS-LISTING: BIOL 3800.03 EXCLUSION: Scheduled classes at a learning institution, study that would qualify for a Special Topics class, an Honours project, coop-work terms and paid work. Only one experiential learning class per degree is permitted.

MARI 4060.03: Marine Mammalogy. The course examines the characteristics that mammals brought with them when they returned to the ocean, their evolution, special adaptations, and roles in marine ecosystems and general principles of the marine mammal population biology. The biology of marine mammals is used to explore conservation management issues. FORMAT: Lectures 3 hours PREREQUISITE: BIOL 2003.03 or BIOL 3001.03 or BIOL 3003.03 CROSS-LISTING: BIOL 5060.03, BIOL 4060.03

MARI 4323.03: Biologging in Ecology. This course explores the fundamentals and applications of biologging and bio-logging: the use of electronic tags to study free-ranging animals and their environment. Students are introduced to the wide range of tags and their diverse applications in biology. FORMAT: Lectures, presentations, labs PREREQUISITE: BIOL 2003.03 or BIOL 3001.03 or PSYO/NESC 2160.03 or permission of the instructor CROSS-LISTING: BIOL 4323.03
MARI 4335.03: Environmental Impacts in Marine Ecosystems.
See course description for OCEA 4335.03, in the Oceanography section of this calendar.

MARI 4369.03: Fisheries Oceanography.
See course description for OCEA 4369.03, in the Oceanography section of this calendar.

MARI 4370.03: Deep Sea Biology.
See course description for OCEA 4370.03, in the Oceanography section of this calendar.

MARI 4661.03: Biological Oceanography.
See course description for OCEA 4661.03, in the Oceanography section of this calendar.

MARI 4662.03: Biology of Phytoplankton.
See OCEA 4662.03 in the Oceanography section of the calendar.

MARI 4664.03: History of Marine Sciences.
This course describes the development of the marine sciences from biological, chemical, physical and geological knowledge going back to the 17th century or earlier. It includes the important voyages of exploration, the development of marine biology, ocean circulation and plate tectonics, also the importance of technological changes upon marine science.

FORMAT: Lecture 3 hours
PREREQUISITE: Instructor's consent
CROSS-LISTING: BIOL 4664.03, OCEA 4331.03, 5331.03, HIST 3073.03, HIST 3331.03, SCI 4681.03

MARI 4666.03: Benthic Ecology.
See course description for OCEA 4666.03, in the Oceanography section of this calendar.

MARI 4667.03: Census of Marine Life.
The Census of Marine Life recorded over 250,000 known species of eukaryotes in the world’s oceans. In this course, the Senior Scientist for Census 2010 examines the diversity, distribution and abundance of marine biota globally, and reviews new approaches to discover new species and to monitor responses to climate change.

FORMAT: Lecture with discussions
PREREQUISITE: BIOL 2003.03 and BIOL 2060.03 or BIOL 3013.03 and six full credits of BIOL, MARI, or OCEA classes.
CROSS-LISTING: BIOL 4667.03

MARI 4806.03: Special Topics in Marine Biology.
Independent study intended for students who wish to study an area of marine biology not covered in other courses. Students should first consult with a faculty member to arrange the topic of study. An outline of the course content must be approved by the Biology Undergraduate Curriculum Committee Chair.

NOTE: For registration forms and further information go to: http://biology.dal.ca/Undergraduate/index.htm

MARI 4807.03: Special Topics in Marine Biology.
Independent study intended for students who wish to study an area of marine biology not covered in other courses. Students should first consult with a faculty member to arrange the topic of study. An outline of the course content must be approved by the Biology Undergraduate Curriculum Committee Chair.

NOTE: This course is for students who have already completed one Special Topics Class. For registration forms and further information go to: http://biology.dal.ca/Undergraduate/index.htm

MARI 4900X/Y.06: Honours Research and Thesis.
This course is required of, and restricted to, all Marine Biology Honours programs in which Marine Biology is the major area of study. Students conduct a research project supervised by a research scientist and attend weekly meetings of the class.

NOTE: The course grade is based on the results of the research which are submitted in April as an Honours Thesis, an oral presentation about the research to the course, and an oral or poster presentation at the Honours Cameron Conference. Co-op students attend this course by registering for Marine Biology 4900X/4900Y.

See details about selecting a supervisor for the honours thesis in a previous work term at the Honours Cameron Conference in February.

MARI 4901.03: Honours Research and Thesis I.
This is required of, and restricted to, all Marine Biology Co-op Honours programs.
The course description is the same as for MARI 4900X/Y. Students attend MARI 4901 in the Winter term of their 4th year and MARI 4902 in the Fall term of their 5th year to accommodate their work terms.

NOTE: 4901 and 4902 must be taken in consecutive winter/fall terms to get a grade for either course. No grade will be recorded for MARI 4901 until 4902 is also completed and the final Honours Thesis has been evaluated - usually in April following the fall course of 4902.

MARI 4902.03: Honours Research Thesis II.
This is the 2nd half of the required course for Marine Biology Co-op honours students. The course description is the same as for MARI 4900X/Y. Students attend 4902 in the fall of their 5th year.

NOTE: 4901 and 4902 must be taken in consecutive winter/fall terms to get a grade for either course. No grade will be recorded for MARI 4901 until 4902 is also completed and the final Honours Thesis has been evaluated - usually in April following the fall course of 4902.

MARI 8891.00: Co-op Workterm I.
PREREQUISITE: SCI 2000.03

MARI 8892.00: Co-op Workterm 2.
PREREQUISITE: MARI 8891.00

MARI 8893.00: Co-op Workterm 3.
PREREQUISITE: MARI 8892.00

MARI 8894.00: Co-op Workterm 4.
PREREQUISITE: MARI 8893.00

MARI 8895.00: Co-op Workterm 5.
PREREQUISITE: MARI 8894.00

MARI 8896.00: Co-op Workterm 6.
PREREQUISITE: MARI 8895.00

MARI 8897.00: Co-op Workterm 7.
PREREQUISITE: MARI 8896.00

MARI 8898.00: Co-op Workterm 8.
PREREQUISITE: MARI 8897.00

MARI 8899.00: Co-op Workterm 9.
PREREQUISITE: MARI 8898.00

MARI 8900.00: Co-op Workterm 10.
PREREQUISITE: MARI 8899.00

MARI 8901.00: Co-op Workterm 11.
PREREQUISITE: MARI 8900.00

MARI 8902.00: Co-op Workterm 12.
PREREQUISITE: MARI 8901.00

MARI 8903.00: Co-op Workterm 13.
PREREQUISITE: MARI 8902.00

MARI 8904.00: Co-op Workterm 14.
PREREQUISITE: MARI 8903.00

MARI 8905.00: Co-op Workterm 15.
PREREQUISITE: MARI 8904.00

MARI 8906.00: Co-op Workterm 16.
PREREQUISITE: MARI 8905.00

MARI 8907.00: Co-op Workterm 17.
PREREQUISITE: MARI 8906.00

MARI 8908.00: Co-op Workterm 18.
PREREQUISITE: MARI 8907.00

MARI 8909.00: Co-op Workterm 19.
PREREQUISITE: MARI 8908.00

MARI 8910.00: Co-op Workterm 20.
PREREQUISITE: MARI 8909.00
Mathematics and Statistics

Location: Chase Building
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-2572
Fax: (902) 494-5130
Email: chair@mathstat.dal.ca
Website: http://www.mathstat.dal.ca

Dean
Morris, C., BA (Hons), PhD (Cambridge), Professor (Psychology)

Chairperson of Department
Smith, B., MA (Calgary), PhD (Berkeley)

Professors Emeriti
Ford, C. A., MSc, PhD (Northwestern), MSc (Minneapolis), FRSC, Groningen, L., PhD (ETH Zurich)
Paz, R., MSc, PhD (McGill)
Radjavi, H., MA, PhD (Minneapolis)
Swaminathan, S. M., MSc, PhD (Medicine)
Thompson, A., Ph.D (Newcastle upon Tyne)

Professors
Brown, J., MSc, PhD (Toronto)
Coley, A. A., PhD (London)
Dilcher, K., MSc, PhD (Queens’s)
Hammond, D., MA, PhD (Queens’s) (Graduate Advisor Stats)
Janssen, J. C., PhD (Loughborough)
Johnson, K. P., MSc (Toronto), PhD (Boulder) (Graduate Advisor Math)
Mensken, J., MSc (McGill) (Director of Mathematics) (Co-op Academic Advisor)
Nuckowski, B. J., MSc, PhD (Calgary)
Selinger, P. (Dalhousie) (Director of Stats)
Smith, B., MA (Calgary), PhD (Berkeley)
Sanko, E., PhD (Waterloo)
Taylor, K., BSc (McGill), PhD (Dalhousie)
Thompson, K., PhD (Liverpool) (CRC Chair) (jointly with Oceanography)
Wood, E. J., MSc (McGill), PhD (Dalhousie)
Zay, Y., MSc (Western Kentucky), PhD (British Columbia) (cross appointment with Management)

Associate Professors
Brisko, R., PhD (Ottawa) (jointly with Computer Science)
Butiakw, J., MA, PhD (Queen’s) (Jointly with Biology)
Dawid, M., MBA, PhD (Dalhousie)
Fardis, S., MSc (Toronto), PhD (Mcgill)
Feist, A., MSc (Economics), PhD (Princeton)
Gu, B., MSc (Peking), PhD (Hong Kong) (Director of Stats)
Herbringer, C., MSc (Paris), PhD (Dalhousie) (jointly with Biology)
Ism, D., MSc, PhD (UBC) (Honors Advisor Math)
Kasden, J., MSc, PhD (UBC)
Mills-Fleming, J., MSc (UNBS) (Statistics)
Münch, A., PhD (Leningrad Inst. Mech. Eng.) (cross appointment with Department of Medicine)
Pronk, D., PhD (Utrecht)

Assistant Professor
Kenney, T., PhD (Cambridge)

Lecturers
Sarhan, A., PhD (Charles)
Sunseri, A., MA (U. Maine), AB (Boston)

Postdoctoral Fellows
Tan, J., PhD (Essex, IL, USA)
Wang, H., PhD (Ottawa)
Xu, X., PhD (Toronto)

Learning Centre Director
Steven, P., MSc (Delhi)

Statistical Consultant
Jones, C., MSc (Dalhousie)

Adjunct Professors
Beattie, M., PhD (Prince Edward Island), Mount Allison
Bonato, A., PhD (Waterloo) (University of New Brunswick)
Brunner, H., PhD (ETH Zurich) (Memorial)
Clark, N., PhD (Dalhousie) (Acadia)
Clements, J., PhD (Dalhousie) (Mount Allison University)
Conn, E., PhD (Regina) (Acadia)
Dawson, R., PhD (Cambridge) (Dalhousie)
Fenwick, S., PhD (Dalhousie) (University of Prince Edward Island)
Grant McLoughlin, J., PhD (UNB) (University of Fredericton)
Gu, B., PhD (Dalhousie) (Dalhousie)
Hartnell, B., PhD (Waterloo) (Dalhousie)
Haynes, R., PhD (Simon Fraser) (Memorial)
Herrick, S., PhD (Canbridge) (University of Wisconsin)
Hersom, G., PhD (University of St. Andrews) (Flagstone RE)
Irving, J., PhD (Waterloo) (Dalhousie)

Associate Professors
Beiko, R., PhD (Ottawa) (jointly with Computer Science)

Graduate book Page 527 Wednesday, March 12, 2014 12:03 PM

Undergraduate book Page 527 Wednesday, March 12, 2014 12:03 PM

Information concerning programs and courses in Mathematics follows immediately below. For Statistics, please refer to the Statistics section on page 575.
Mathematics

I. General Interest Courses

The Division offers several courses for non-majors who would like to know something about Mathematics:

- **MATH 1000.03/1001.03**: These core calculus courses are the starting point for any degree program in the sciences.
- **MATH 1001.03/1002.03**: This course is designed especially for BA students and others who wish to know about the historical and cultural aspects of mathematics.
- **MATH 1000.03**: This course serves as an introduction, through examples drawn from a wide variety of disciplines, to the basic ideas of statistics.
- **MATH 1100.03**: 1101.03**: Linear algebra and calculus are introduced to meet the needs of commerce students, but of interest to anyone wishing a brief introduction to either of these topics.

**Math 1215.03**: This course emphasizes the applications of calculus to the life sciences.

- **MATH 2101.03/2112.03**: Whereas calculus deals with continuous phenomena, this course deals with discrete objects, especially varieties of ways to count.
- **MATH 2120.03/2135.03**: This course introduces the basic ideas of matrix theory, linear equations and linear algebra. Topics of importance in many fields of study.

II. Degree Programs

One full credit in Mathematics is required for a BSc degree but none of the following courses may be used to satisfy this requirement:

- **MATH 1000.03/1001.03**: These core calculus courses are the starting point for any degree program in the sciences.
- **MATH 1001.03/1002.03**: This course is designed especially for BA students and others who wish to know about the historical and cultural aspects of mathematics.
- **MATH 1000.03**: This course serves as an introduction, through examples drawn from a wide variety of disciplines, to the basic ideas of statistics.
- **MATH 1100.03**: 1101.03**: Linear algebra and calculus are introduced to meet the needs of commerce students, but of interest to anyone wishing a brief introduction to either of these topics.

**Math 1215.03**: This course emphasizes the applications of calculus to the life sciences.

- **MATH 2101.03/2112.03**: Whereas calculus deals with continuous phenomena, this course deals with discrete objects, especially varieties of ways to count.
- **MATH 2120.03/2135.03**: This course introduces the basic ideas of matrix theory, linear equations and linear algebra. Topics of importance in many fields of study.

In addition to satisfying the Faculty of Science regulations for Honours Programs, all Honours programs in mathematics must include the following courses.

**Departmental Requirements**

**2000 level**

- **MATH 2040.03**
- **MATH 2050.03**
- **MATH 2112.03/3120.03**
- **MATH 2060.03/2080.03**
- **Two other credits in mathematics at or above the 2000 level - not including courses listed below**

**3000 level**

- **MATH 3000X/Y.06**
- **MATH 3000X/Y.06**

**4000 level**

- **MATH 4950.03**
- **Honours Research Project**
- **Two other credits at or above the 4000 level**

Students may choose programs with a concentration in Applied Mathematics or Pure Mathematics. Students wishing to include Computer Science should consider Combined Honours in Mathematics and Computer Science. Students wishing to include Statistics should consider Combined Honours in Mathematics and Statistics. All Honours programs must be approved by the Honours advisor.

Students interested in applied mathematics are advised to select a program that includes, in addition to the required courses above, courses from among the following:

- **MATH 2200.03**
- **MATH 2210.03/MATH 3120.03**
- **MATH 2220.03**
- **MATH 2240.03**
- **MATH 2300.03**
- **MATH 2300.06**
- **MATH 2330.03**
- **MATH 2330.06**
- **MATH 2360.03**
- **MATH 2360.06**
- **MATH 2380.03**
- **MATH 2380.06**
- **MATH 2400.03**
- **MATH 2400.06**
- **MATH 2400.09**
- **MATH 2400.12**
- **MATH 3400.03**
- **MATH 3400.06**
- **MATH 3400.09**
- **MATH 3400.12**
- **MATH 3500X/Y.06**

Students interested in pure mathematics are advised to select a program that includes, in addition to the required courses above, courses from among the following:

- **MATH 2200.03**
- **MATH 2210.03/MATH 3120.03**
- **MATH 2220.03**
- **MATH 2240.03**
- **MATH 2300.03**
- **MATH 2300.06**
- **MATH 2330.03**
- **MATH 2330.06**
- **MATH 2360.03**
- **MATH 2360.06**
- **MATH 2380.03**
- **MATH 2380.06**
- **MATH 2400.03**
- **MATH 2400.06**
- **MATH 2400.09**
- **MATH 2400.12**
- **MATH 3400.03**
- **MATH 3400.06**
- **MATH 3400.09**
- **MATH 3400.12**
- **MATH 3500X/Y.06**

**Honours Comprehensive Examination**

The Honours Comprehensive Examination in mathematics consists of a written paper of about 20-30 pages researched and prepared by the student. The topic is decided on in conjunction with the Honours advisor. The paper is also presented to the honours seminar. The work for this paper also constitutes the work for the required course MATH 4590.03.

**B. BSc Combined Honours**

A combined honours program may be appropriate for many students wishing to have a broad range of expertise.

Students interested in taking honours in mathematics and another subject as a combined program should consult the Mathematics Honours advisor. Combined programs in areas such as Mathematics and Statistics, Mathematics and Computer Science, Mathematics and Physics, Mathematics and Chemistry and Mathematics and Economics are common, but combined programs with Mathematics and any subject in the Faculty of Science, Faculty of Arts and Social Science, and Faculty of Computer Science can be arranged. These programs must satisfy University Regulations, but are designed to satisfy the interests and needs of the student.

Students contemplating a combined honours program in Mathematics and another subject should bear in mind that the work in either subject would probably be insufficient for admission to a regular graduate program. A qualifying year would usually be necessary.
C. BSc or BA (20 credit) Major in Mathematics

Departmental Requirements - Major

2000 level
• MATH 2030.03 and 2040.03
• At least one of MATH 2060.03 or 2080.03
• One additional half credit at or above 2000 level

3000 level
• Four other mathematics credits at or above the 3000 level. This selection may include MATH 3700, MATH 3800.

Students wishing to concentrate in Applied Mathematics should choose the extra mathematics courses from
• MATH 2000.03/MATH 2080.03
• MATH 2120.03
• MATH 2130.03
• MATH 2200.03
• MATH 2300.03
• At least one of MATH 2112.03, 2051.03 or 2505.03

Students wishing to concentrate in Pure Mathematics should choose the extra mathematics courses from
• MATH 2000.03/MATH 2080.03
• MATH 2112.03/MATH 2133.03
• MATH 2200.03
• MATH 2300.03
• MATH 2400.03

Students contemplating a career in Mathematics Education should choose the extra mathematics courses from
• MATH 2010.03
• MATH 2020.03
• MATH 2100.03
• MATH 2110.03
• MATH 2200.03
• MATH 2300.03
• MATH 2400.03

D. BSc Double Major in Mathematics and another Science subject, Double Major in Mathematics and a BA Subject

Student completing a double major with Mathematics can fulfill the Mathematics requirements by following one of two programs below. In both cases, students are advised to consult with the department.

Pure Mathematics

2000 level
• MATH 2000.03 and 2020.03
• At least one of MATH 2010.03 or 2135.03

3000 level
• Two other mathematics credits at or above the 3000 level. This selection may include MATH 3700, MATH 3800.

Applied Mathematics

2000 level
• MATH 2000.03
• MATH 2010.03, 2040.03
• MATH 2120.03
• At least one of MATH 2060.03 or 2080.03

3000 and 4000 level
• MATH 3120.03
• At least three of MATH 3080.03, 3210.03, 3250.03, 3300.03, 3330.03, 3400.03, 3900.03, 4190.03, 4220.03, 4230.03, 4250.03, 4540.03, 4560.03

E. Co-op Education in Mathematics

Co-operative Education in Science (Science Co-op) is a program where academic study is combined with paid career related work experience. Students alternate three work terms throughout their academic study terms and graduate with a Bachelor of Science Co-op. Science Co-op enables students to apply their knowledge directly while providing them with work experience that assists in making educated career choices. Students apply to join Science Co-op before their second year of study. If accepted into the Science Co-op program, students are required to register for and attend the Science Co-op Seminar Series (SCS) 2800.03 in the fall of the year they join.

See the “Co-operative Education in Science” section of this calendar, or http://www.sciencecoop.dal.ca, for information on Science Co-op such as Science Co-op requirements, eligibility, how to apply, deadlines and other related information.

For further information, please see http://www.sciencecoop.dal.ca

Co-op Academic Advisor in Mathematics
Dr. Milson (494-6366) rmilson@dal.ca

F. BSc or BA (15 credit) with Minor in Mathematics

A BSc (15 credit) degree program with a Minor in Mathematics is available to students in the Faculty of Science. Requirements are outlined in the College of Arts and Science Minors section of this Calendar starting on page 129.

Departmental Requirements
• MATH 1000.03/MATH 1010.03 or MATH 1500.00XY
• MATH 2051.03
• MATH 2100
• At least one of MATH 2112.03, 2051.03 or 2505.03

G. Minor in Mathematics

Minor programs allow students to develop subject specialities in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year major or concentrated honours program. Students in other 20 credit degree programs may choose to include a Minor in Mathematics in their program. Requirements are outlined in the College of Arts and Science Minors section of this Calendar starting on page 129.

H. Minors available to students in Mathematics

Minor programs allow students to develop subject specialities in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year major or concentrated honours program (including co-op programs).

Students in a 20 credit BSc program in Mathematics may choose to include a Minor in Mathematics in their program. Requirements are outlined in the College of Arts and Science Minors section of this Calendar starting on page 129.

I. BSc/Engineering or BA/Engineering Concurrent Programs

Students will normally complete the requirements for a 15 Credit BSc or 15 Credit BA, and the first two years of engineering studies leading to the Diploma in Engineering. The concurrent program can be completed in three years. Details are provided in the College of Arts and Science Degree Requirements on page 125 of this calendar.

The departmental requirements for this program are as outlined above for the 15 Credit BSc with Minor in Mathematics.

Alternatively, eligible students can complete the following departmental requirements:
The following three courses below the 1000 level are offered by the College of Continuing Education. Students register and pay for them at the College of Continuing Education located at 1220 LeMarchant Street, 2nd Floor or by calling (902) 494-2175 (see page 41, College of Continuing Education, for more details).

**MATH 0009.00: Academic Math.**  
This non-credit grade 12 math course is intended for students who want to upgrade their math skills for admission to the Bachelor of Commerce, Management or Nursing programs or the pre-calculus plus-math course. The course contains a thorough investigation of elementary functions, Probability and geometry topics round out this course.

**FORMAT: Class 3 hours, tutorial 1 hour**  
**PREREQUISITE: At least grade 10 academic math or equivalent**

**MATH 0010.00: Pre-Calculus Mathematics (NS Grade 12 Pre-Calculus Math).**  
This fast-paced 1 term course has been designed for calculus bound students who have a firm grasp of grade 11 and 12 math skills. Composite, inverse, polynomial and rational functions, exponential functions with base e, and trigonometry using radian measure are studied.

**FORMAT: Class 3 hours, tutorial 1 hour**  
**PREREQUISITE: Recommended at least 75% in grade 11 advanced and 12 advanced math**

**MATH 0011.00: Pre-Calculus Plus (NS Grade 12 pre-calculus).**  
This full year course has been designed for the majority of students, either requiring Pre-calculus for admittance to the Dalhousie BSc program or as preparation for Calculus 1000. In addition to a more in depth coverage of the pre-calculus topics presented in MATH 0010.00, a review of the relevant math 11 and 12 material is provided.

**FORMAT: Class 3 hours, tutorial 1 hour**  
**PREREQUISITE: Solid understanding of Grade 11 and 12 math or equivalent**

**MATH 1000.03: Differential and Integral Calculus I.**  
This course offers a self-contained introduction to differential and integral calculus. The topics include functions, limits, differentiation of polynomial, exponential and logarithmic functions, product, quotient and chain rules, applications of differentiation, antiderivatives and definite integrals, integration by substitution. A sequel to this course is MATH 1010.03. The XY version of this course covers the same material, but the course duration is spread over the Fall and Winter term. The format of the XY course (1.5 hour workshopping twice a week, and the smaller class size) allows for a more interactive learning environment than is a regular lecture format.

**PREREQUISITE: Nova Scotia Mathematics advanced 11 and 12 or pre-calculus.**

**EXCLUSION: MATH 1215.03, MATH 1210.03, MATH 1180X/Y.**

**MATH 1001.03: Mathematics for Liberal Arts Students I.**  
For students who wish to become acquainted with mathematics as an art rather than as a tool for the sciences. Selection of elementary topics will be discussed with a view to illuminating historical and cultural aspects of the subject. Required work will include a series of written reports on assigned readings and a major essay. This course cannot be used to partially satisfy the BSc mathematics requirement.

**FORMAT: Lecture 3 hours, MLC.**

**PREREQUISITE: Grade 12 math or equivalent.**

**MATH 1002.03: Mathematics for Liberal Arts Students II.**

Same as 1001.03 above, but with a different set of topics. Either one or both of 1001.03 and 1002.03 may be taken for credit. This course cannot be used to partially satisfy the BSc mathematics requirement.

**FORMAT: Lecture 3 hours, MLC.**

**MATH 1010.03: Differential and Integral Calculus II.**  
A continuation of the study of calculus with topics including: Riemann sums, techniques of integration, improper integrals, differential equations and applications, parametric equations and polar coordinates, sequences and series, Taylor series.

**PREREQUISITE: MATH 1006.03, or MATH 1215.03 with a grade of B- or better**
TABLE 1000.03: Introductory Statistics for Science and Health Sciences.
See course description for STAT 1000.03 in the Statistics section of this calendar.

MATH 1105.03: Mathematics for Commerce.
An introduction to matrices, linear programming, mathematics of finance, probability and differential calculus. All topics are taught with an emphasis on applications to business. This course cannot be used to partially satisfy the BSc Mathematics requirement.
FORMAT: Lecture 3 hours, MLC
PREREQUISITE: Nova Scotia Advanced Mathematics 11 or 12 or equivalent
EXCLUSION: MATH 1101.03, MATH 1200.03

MATH 1215.03: Life Sciences Calculus.
This course emphasizes the application of calculus to the life sciences. The concepts and content studied include derivatives, techniques of differentiation, exponential and logarithmic functions, optimization, basic ordinary differential equations, integration, and techniques and applications of integration.
NOTE: Students who have already received credit for MATH 1213.03 cannot subsequently receive credit for MATH 1113.03.
FORMAT: Lecture/tutorial
PREREQUISITE: Nova Scotia Mathematics 11 and 12 or pre-calculation is highly recommended.
EXCLUSION: MATH 1000.03, MATH 1500C/Y.06

MATH 1280.03: Engineering Mathematics I.
This forms an introduction to differential and integral calculus for Engineering students. All topics of Math 1000.03 are covered, but in greater depth. In addition, this course covers functions, differentiation of polynomial, trigonometric, exponential and logarithmic functions, product, quotient and chain rules, Taylor series, antiderivatives and definite integrals, Riemann sums, polynomial approximations, and numerical approximations of integrals.
NOTE: Students who have already received credit for MATH 1281.03 cannot subsequently receive credit for MATH 1000.03 or MATH 1115.03.
FORMAT: Lecture/tutorial 9hr.
PREREQUISITE: Nova Scotia Mathematics advanced 11 and 12 or pre-calculation is highly recommended.
EXCLUSION: MATH 1000.03, MATH 1215.03

MATH 1290.03: Engineering Mathematics II.
This course is a sequel to MATH 1280. All topics of MATH 1010.03 are covered, but in greater depth. This course also introduces the students to the application of mathematics in engineering problems.
NOTE 1: Students who have already received credit for MATH 1291.03 cannot subsequently receive credit for MATH 1010.03.
NOTE 2: MATH 1010.03 is not equivalent to MATH 1290.03.
FORMAT: Lecture/tutorial 9hr.
PREREQUISITE: MATH 1280.03

MATH 1500X/Y.06: Calculus.
This course is intended primarily for students who are considering a major or an honours program in the physical or mathematical sciences. The topics of MATH 1000/MATH 1010 are covered, but in greater depth. MATH 1500 is an equivalent as a credit to MATH 1000/MATH 1010.
NOTE: Credit can only be given for one of the courses 1000 or 1010 if X or Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture 3 hours
PREREQUISITE: Nova Scotia Mathematics advanced 11 and 12 or pre-calculation is highly recommended.
EXCLUSION: Credit can be given for only one of MATH 1000/MATH 1010 and MATH 1100.

MATH 1600.03: Spectrum of Mathematics.
This course teaches basic mathematical reasoning, and highlights topics that are not part of the standard first-year mathematics curriculum. Topics may include: logic and computers, symmetry in science, prime numbers and cryptography, finite fields and communication error lists, surfaces and the shape of space.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 1000.03, advanced placement in Calculus, or permission of instructor.

MATH 2001.03: Intermediate Calculus I.
Topics include review of parametric equations, polar coordinates, conic sections, coordinate systems and vectors, dot product and cross product, vector functions, derivatives and integrals of vector functions, arc length and curvature, functions of several variables and partial derivatives, directional derivatives and double and triple integrals.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 1010.03

MATH 2002.03: Intermediate Calculus II.
Topics include multiple integrals and changes of variables, and vector calculus, with an emphasis on Green's and Stokes' theorems. The course also includes an introduction to second order ordinary differential equations.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2001.03

MATH 2030.03: Matrix Theory and Linear Algebra I.
This course is a self-contained introduction to Matrix Theory and Linear Algebra. Topics include: subspaces, linear transformations, determinants, eigenvalues and eigenvectors, systems of linear equations. Students should note that this is a second-year course and, although it has no formal first-year prerequisites, certain mathematical maturity is expected.
FORMAT: Lecture 3 hours, MLC
PREREQUISITE: Nova Scotia advanced Mathematics 11 or 12

MATH 2040.03: Matrix Theory and Linear Algebra II.
This course is a continuation of MATH 2030.03. Topics include: vector spaces and linear transformations, eigenvalues and eigenvectors, similarity and diagonalization, inner product spaces and orthogonal transformations, diagonalization of symmetric matrices and quadric forms.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2030.03, and 1000.03 or 1500C/Y.06 or 1215.03
EXCLUSION: MATH 2135.03

MATH 2051.03: Problems in Geometry.
This is a basic course for all students interested in geometry. Topics from Euclidean and non-Euclidean geometry may include: transformation geometry, symmetry groups, finite groups, wallpaper groups and the crystallographic restriction, similarities, projective geometry and the classical theorems of Minkows, Desargues, Pappus, Pascal, hyperbolic geometry.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 1000.03 or 1500C/Y.06

MATH 2060.03: Introduction to Probability and Statistics I.
See course description for STAT 2060.03 in the Statistics section of this calendar.

MATH 2080.03: Statistical Methods For Data Analysis & Inference.
See course description for STAT 2080.03 in the Statistics section of this calendar.

MATH 2112.03: Discrete Structures I.
This course continues CSCI2113.03/MA TH2113.03. This course covers some basic concepts in discrete mathematics which are of particular relevance to students of computer science, engineering, and mathematics. The topics to be covered include: induction, recurrence relations, relations, functions, algorithm structures and introductory graph theory. The topics to be discussed are fundamental to most areas of Mathematics and have wide applicability to Computer Science.
FORMAT: Lecture 3 hours
PREREQUISITE: Nova Scotia Mathematics 441 or equivalent
CROSS-LISTING: CSCI 2112.03

MATH 2113.03: Discrete Structures II.
This course continues CSCI2112.03/MATH2112.03. This course covers some basic concepts in discrete mathematics which are of particular relevance to students of computer science, engineering, and mathematics. The topics to be covered include: induction, recurrence relations, relations, functions, algorithm structures and introductory graph theory. The topics to be discussed are fundamental to most areas of Mathematics and have wide applicability to Computer Science.
FORMAT: Lecture 3 hours
CROSS-LISTING: CSCI 2113.03

MATH 2120.03: Methods for Ordinary Differential Equations.
A comprehensive introduction to the theory of ordinary differential equations (ODEs), which is a broad field in pure and applied mathematics with numerous applications in other sciences. The topics include: special types of ODEs of 1st order, exactness, linear independence, solutions of linear homogeneous and non-homogeneous equations, power series solutions, and the qualitative behavior of solutions.
FORMAT: Lecture 3 hours, MLC
PREREQUISITE: MATH 2001.03

Mathematics 531
MATH 3080.03: Introduction to Complex Variables.
An introduction to the basic elements of complex analysis. Topics include complex numbers, functions, differentiation and integration in the complex plane, some special mappings, series in general, Taylor and Laurent Series, residues, some principles of conformal mapping theory.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2002.03
MATH 3120.03: Differential Equations.
The topics discussed are of great importance to any student interested in applied mathematics. Areas include Fourier series, orthogonal polynomials, Sturm-Liouville problems, the classical partial differential equations, and some applications to physics, chemistry and engineering.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2120.03 or MATH 3110.03 or PHYS 2140.03
MATH 3140.03: Introduction to Wavelets.
Wavelet analysis provides an extremely powerful and highly flexible tool for the compression, denoising, and reconstruction of both audio and image signals. This course will develop many of the essential mathematical ideas behind Fourier analysis and wavelets. Many applications will also be discussed and examined.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2002.03 and MATH 2100.03
MATH 3210.03: Introduction to Numerical Analysis.
This course covers the practice as well as theory of basic numerical techniques. Topics may include: root finding, interpolation, integration, initial value problems, linear and nonlinear fitting, boundary value problems. We will emphasize error analysis and stability of methods, as well as practical implementation on a computer.
PREREQUISITE: Math 2001.03 or (MATH 2100 and MATH 2100)
MATH 3260.03: Mathematical Modelling II.
The course looks at several different applications of differential equations. Each application is chosen to learn a basic mathematical technique. Topics include: dimensional analysis, phase plane methods, multiple scales, boundary layers, delay differential equations, synchronization, chaos.
PREREQUISITE: MATH 2520.03 or consent of the instructor
MATH 3300.03: Optimization.
An introduction to the concepts and applications of linear programming. Topics include the simplex method for linear programming, duality and sensitivity analysis. Some of these topics are illustrated by means of interactive computer packages.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 3380.03
MATH 3330.03: Applied Graph Theory.
This course offers an introduction to graph theory, with an emphasis on applications and modeling. Topics include: paths and cycles, shortest route problem, connectivity and trees, minimum spanning trees, network flow, planar graphs, matchings, assignment problem, graph colouring and applications to scheduling. Hamilton-cycles, and the Travelling Salesman Problem.
PREREQUISITE: MATH 2120.03 or MATH 2100.03
MATH 3340.03: Regression and Analysis of Variance.
See course description for STAT 3360.03 in the Statistics section of this calendar.
MATH 3350.03: Design of Experiments.
See course description for STAT 3350.03 in the Statistics section of this calendar.
MATH 3360.03: Probability.
See course description for STAT 3360.03 in the Statistics section of this calendar.
MATH 3380.03: Sample Survey Methods.
See course description for STAT 3380.03 in the Statistics section of this calendar.
MATH 3400.03: Classical Game Theory.
This course will cover the important concepts of classical game theory: game trees, dominance, zero-sum games, saddle points, utility theory, non-zero sum games, Nash equilibrium, non-competitive solutions. Prisoner’s dilemma, Chicken, Newcomb’s problem. There will be applications to many areas including anthropology, biology, business, economics and philosophy.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2010.03, or permission of the instructor
MATH 3460.03: Intermediate Statistical Theory.

This course provides a logical development of some of the major concepts in statistical inference. Topics include: estimation, confidence intervals, hypothesis testing, goodness-of-fit, nonparametric methods, regression, analysis of variance, and design of experiments. The course is intended for students who have completed MATH 3030X/Y.06 or equivalent and who are interested in pursuing further studies in statistics.

MATH 4055.03: Advanced Algebra II.

Topics may include: groups, group actions, quotient groups, Sylow theorems, field theory and field extensions, and Galois theory. FORMAT: Lecture 3 hours

PREREQUISITE: MATH 3030X/Y.06

MATH 4065.03: Algebraic Geometry.

This is a first course in algebraic geometry and will introduce students to the basic properties of affine and projective varieties. Topics covered will include: solutions from local properties of plane curves, elliptic curves, Hirono's Theorem, Riemann-Roch Theorem. FORMAT: Lecture 3 hours

PREREQUISITE: MATH 3030X/Y.06

MATH 4066.03: Advanced Statistical Theory I.

See course description for STAT 4066.03 in the Statistics section of this calendar.

MATH 4070.03: Topics in Number Theory.

This course is an introduction to modern cryptographic techniques and its mathematical foundations. The material covered includes: elementary number theory and algebra, classical cryptosystems, probability, the Data Encryption Standard, prime number generation and primality tests, public key cryptosystems, and further applications, such as digital signatures and identification. PREREQUISITE: MATH 1000.03, 1010.03, 2020.03, and at least one full-year mathematics course beyond the first year or permission of the instructor

CROSS LISTED: CSC 4116.03

MATH 4120.03: Analytic Number Theory.

A discussion of Riemann's theory of number and integration. The topics include: measurable sets, functions and spaces, Lebesgue measure and the existence of non-measurable sets, the Lebesgue integral and convergence theorems, absolute continuity, the classical Lebesgue spaces, decomposition and generation of measures, product measures and Fubini's Theorem.

PREREQUISITE: MATH 3030X/Y.06

MATH 4135.03: Introduction to Category Theory.

A category is a collection of objects and morphisms between them. The morphisms must satisfy certain conditions that are modeled on the intuitive notion of a function. Categories are used to specify the structure of a mathematical theory and to study the relationships between different theories. Topics may include: categories, functors, natural transformations and adjointness are introduced with emphasis on examples drawn from undergraduate Mathematics and theoretical Computer Science. The calculus of diagram chasing, limits, colimits and Kan extensions is explained in detail.

PREREQUISITE: MATH 3030X/Y.06 or permission of the instructor

CROSS LISTED: MATH 5135.03

MATH 4136.03: Topics in Category Theory.

Topics of current interest in category theory will be discussed with an emphasis on open problems. No previous knowledge of category theory is required. The necessary concepts will be discussed in the context of their applications. However, a certain familiarity with the basic concepts of modern mathematics such as found in courses on algebra and topology would be an asset.

PREREQUISITE: MATH 3030X/Y.06 and consent of instructor

CROSS LISTED: MATH 5136.03

MATH 4140.03: Introduction to Functional Analysis.

An introduction to the basic principles of functional analysis including the following topics: infinite dimensional vector spaces, normed spaces, inter-product
spaces, Banach and Hilbert spaces, linear and continuous linear functionals, the Hahn-Banach Theorem, the principle of uniform boundedness, dual space, weak* topology, and the Alaoglu theorem, the open mapping and closed graph theorems, and consequences and applications.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2135.03 and 3500X/Y06
cross-listing: MATH 3140.03

MATH 4200.03: Introduction to Partial Differential Equations.
This course is a basic introduction to the theory of partial differential equations. Topics covered include: modeling physical systems, method of characteristics, Laplace, wave and heat equations, separation of variables, eigenfunction expansions, integral transforms, maximum principles and Ritz-Raleigh theory.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2120.03 or MATH 3110.03
cross-listing: MATH 3220.03

MATH 4220.03: Introduction to Partial Differential Equations.
This course is a basic introduction to the theory of partial differential equations. Topics covered include: modeling physical systems, method of characteristics, Laplace, wave and heat equations, separation of variables, eigenfunction expansions, integral transforms, maximum principles and Ritz-Raleigh theory.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2120.03 or MATH 3110.03
cross-listing: MATH 3220.03

MATH 4230.03: Partial Differential Equations.
This course will provide students with an introduction to advanced topics in partial differential equations in a variety of settings. Topics may include: reaction diffusion systems, pattern formation, variational methods, applications to physical sciences, variational methods, Sobolev theory.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 3120.03 or permission of the instructor
cross-listing: MATH 3220.03

MATH 4250.03: Asymptotic Analysis.
Most mathematical models of physical systems cannot be solved exactly. Often such systems have a naturally occurring small parameter which may be exploited using asymptotic analysis techniques. In this course, we will study a variety of physical systems which illustrate many of the common approaches used in asymptotic analysis. Focus will be on applications to ordinary and partial differential equations.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2022.03 or MATH 2120.03 and MATH 3110.03

MATH 4230.03: Partial Differential Equations.
This course will provide students with an introduction to advanced topics in partial differential equations in a variety of settings. Topics may include: reaction diffusion systems, pattern formation, variational methods, applications to physical sciences, variational methods, Sobolev theory.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 3120.03 or permission of the instructor
cross-listing: MATH 3220.03

MATH 4300.3: Topics in Graph Theory.
This course is intended for math and computer science students. Items to be selected from the following topics: graphs and matrices, graphs and groups, network analysis, extremal graph theory, enumeration problems, and algebraic graph theory.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2113.03 or permission of the instructor
cross-listing: MATH 3320.03

MATH 4310.03: Introduction to Algebraic Topology. An introduction to algebraic topology, including the following topics: the fundamental group, covering spaces, simplicial complexes, with an emphasis on how to model these structures with other fields of mathematics, such as matrix theory and linear algebra, commutative algebra, topology, analysis, probability, and logic.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 3010X/Y06
cross-listing: MATH 5320.03

MATH 4330.3: Discrete Random Structures.
This course introduces a common framework for combinatorial structures (graphs, digraphs, hypergraphs, posets, matroids, lattices, finite topologies, simplicial complexes), with an emphasis on how to model these structures with other fields of mathematics, such as matrix theory and linear algebra, commutative algebra, topology, analysis, probability, and logic.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 2060.03 and MATH 3010X/Y06
cross-listing: MATH 5560.03

MATH 4360.03: Combinatorial Optimization.
Various graph algorithms will be presented and analyzed. Specifically we will use the algorithms for the problems: minimum spanning tree, shortest path, maximal flow, minimum cost flow, maximum matching. For each problem, various algorithms will be presented and compared. The link with Linear Programming, especially LP-Duality, will receive special attention.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 3330.03 or CSCE 3110.03 or permission of the instructor
cross-listing: MATH 5330.03, CSCE 4115.03

MATH 4370.03: Topics in Topology and Functional Analysis. Topology is the mathematical subject that allows one to make precise the concept of continuity. Rudin defines functional analysis as the study of certain topological-algebraic structures and of the methods by which knowledge of these structures can be applied to analytic problems. He adds that the subject is huge and growing rapidly and, accordingly, we offer a "topics" course.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 3120.03 and MATH 2905.03 or permission of the instructor
cross-listing: MATH 5190.03

MATH 4395.03: Topics in Topology and Functional Analysis. Topology is the mathematical subject that allows one to make precise the concept of continuity. Rudin defines functional analysis as the study of certain topological-algebraic structures and of the methods by which knowledge of these structures can be applied to analytic problems. He adds that the subject is huge and growing rapidly and, accordingly, we offer a "topics" course.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 3120.03 and MATH 2905.03 or permission of the instructor
cross-listing: MATH 5190.03

MATH 4400.03: Ordinary Differential Equations - Qualitative Theory. Qualitative theory is concerned with determining the behaviour of solutions of differential equations without finding explicit solutions. Topics are selected from Lyapunov stability theory, stable and unstable manifolds of singular points and periodic solutions, classification of planar singular points, structural stability and Hamiltonian systems. Other topics at the instructor’s discretion.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 4180.03
cross-listing: MATH 5200.03

MATH 4420.03: Ordinary Differential Equations - Qualitative Theory. Qualitative theory is concerned with determining the behaviour of solutions of differential equations without finding explicit solutions. Topics are selected from Lyapunov stability theory, stable and unstable manifolds of singular points and periodic solutions, classification of planar singular points, structural stability and Hamiltonian systems. Other topics at the instructor’s discretion.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 4180.03
cross-listing: MATH 5200.03

MATH 4420.03: Ordinary Differential Equations - Qualitative Theory. Qualitative theory is concerned with determining the behaviour of solutions of differential equations without finding explicit solutions. Topics are selected from Lyapunov stability theory, stable and unstable manifolds of singular points and periodic solutions, classification of planar singular points, structural stability and Hamiltonian systems. Other topics at the instructor’s discretion.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 4180.03
cross-listing: MATH 5200.03

MATH 4420.03: Ordinary Differential Equations - Qualitative Theory. Qualitative theory is concerned with determining the behaviour of solutions of differential equations without finding explicit solutions. Topics are selected from Lyapunov stability theory, stable and unstable manifolds of singular points and periodic solutions, classification of planar singular points, structural stability and Hamiltonian systems. Other topics at the instructor’s discretion.

FORMAT: Lecture 3 hours
PREREQUISITE: MATH 4180.03
cross-listing: MATH 5200.03
MATH 4370.03: Combinatorics: Techniques and Structures.
We introduce counting techniques and combinatorial structures, and show their applications and use in all branches of mathematics. Counting techniques include combinations and permutations, the pigeonhole principle, inclusion/exclusion. Advanced techniques include recurrence relations, generating functions and power series. Structures include partial orders, set systems and transversals, and finite geometries.
FORMAT: Lecture
PREREQUISITE: MATH 2122.03 or MATH 2501.03 or MATH 3501.03 or MATH 3502.03
CROSS-LISTING: MATH 5370.03

MATH 4410.03: Cosmology.
A self-contained introduction to cosmology will be given and no prior knowledge of differential geometry or general relativity will be assumed (although some knowledge of elementary differential equations will be useful). A cosmological model is a model of the universe, as a whole, on the largest scales; the emphasis of the course will be on the modelling aspects of cosmology.
FORMAT: Lecture 3 hours
PREREQUISITE: Instructor’s permission
CROSS-LISTING: MATH 5410.03, PHYC 4660.03/5660.03

MATH 4500.03: Introduction to Harmonic Analysis.
This course covers the basic elements of L-space, convolution, interpolation, maximal functions, Fourier analysis of functions, and the theory of generalized functions, or distributions. Further topics may include L2-Sobolev spaces, boundary values of harmonic functions, spherical harmonics, singular integral operators, or multipliers.
FORMAT: Lecture
PREREQUISITE: MATH 4010.03 or MATH 4500.03 with permission of instructor
CROSS-LISTING: MATH 5500.03

MATH 4530.03: Differential Geometry.
This course is a self-contained introduction to manifold theory. Topics include elements of surface theory, the tangent space, vector fields, differential forms and more general tensors, the Lie derivative, connections, Riemannian geometry, applications in mechanics and general relativity.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 3084.03 or MATH 3501.03 or permission of the instructor
CROSS-LISTING: MATH 5530.03

MATH 4540.03: Applied Analysis.
This course is an introduction to the methods of modern applied analysis. This course is suitable for advanced undergraduate and graduate students. The topics include classification of planar dynamical systems, non-linear dynamics, and equilibria, global non-linear techniques, closed orbits and limit cycles. Calculus of Variations: first and second variations, symmetries, conservation laws and Noether’s theorem, Hamiltonian formalism. Time permitting, other topics in Applied Analysis such as tensor calculus will be covered.
FORMAT: Lecture
PREREQUISITE: MATH 3120.03 or consent of instructor
CROSS-LISTING: MATH 5540.03

MATH 4560.03: General Relativity.
A review of differential geometry will be given followed by an introduction to the general theory of relativity. Various topics will be discussed, including: invariant theory and geometrodynamics, spherically symmetric metrics and the Schwarzschild solution, gravitational collapse, black holes, and cosmology.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 3045.03 or permission of the instructor
CROSS-LISTING: MATH 5560.03, PHYC 4660.03/5660.03

MATH 4600.03: Automata and Computability.
See course description for CSCI 4512.03 in the Computer Science section of this calendar

MATH 4680.03: Topics in Logic and Computation.
This course covers topics of current interest in logic and the foundations of computation. Suitable topics include: formal logic, soundness and completeness, Gödel’s incompleteness theorem, formal set theory, the Zermelo-Fraenkel axioms, non-standard models, independence of axioms, lambda calculus and foundations of functional programming languages, proof theory, semantics.

NOTE: Please consult the instructor for the topics offered in a particular year. This course is suitable for advanced undergraduates and graduate students from both mathematics and computer science.
FORMAT: Seminar
PREREQUISITE: MATH 3030/5030 or MATH 3501/5501 or CSCI 3110/5110 and CSCI 3136/5136, or permission of the instructor.
Suggested prerequisites for math students are algebra or analysis at honours undergraduate level. Students from computer science should be familiar with formal language theory and concepts of programming languages. All students should be comfortable with writing mathematical proofs. When in doubt about prerequisites, please consult the instructor.
CROSS-LISTING: MATH 5600.03

MATH 4800.03: Introduction to Mathematical Research.
This course is intended to introduce students to the science and methodology of research in the mathematical sciences. The course will be organized around topics from a wide spectrum of mathematics from which students will be guided to investigate open problems. Conjectures will be formulated and evidence will be developed.
FORMAT: Lecture 5 hours
PREREQUISITE: MATH 2002.03, 2040.03 or 2153.03, MATH 3030/5030 or permission of the instructor
CROSS-LISTING: MATH 5800.03, CSCI 4800.03

MATH 4900.03: Combinatorial Game Theory.
This course looks at 2-player games of strategy where there are no chance devices and both players have perfect information. The surprising mathematical structure underlying these games will be introduced along with the evaluation scheme and its application to specific games in the course of hot, all-small and impartial games.
PREREQUISITE: MATH 2010.03/2040.03, 2011.03/2041.03, 2001.03/2002.03
CROSS-LISTING: MATH 5900.03

MATH 4950.03: Honours Research Project.
A requirement for the mathematics honours degree, this course consists of a supervised research project culminating in a written report and an oral presentation in the honours seminar. Enrollment must be approved by the mathematics honours coordinator.
NOTE: Students will be required to take two full 4000-level courses in addition to this one.

MATH 8891.00: Co-op Work-Term I.
PREREQUISITE: SCIE 3700.03

MATH 8892.00: Co-op Work-Term II.
PREREQUISITE: MATH 8891.00

MATH 8893.00: Co-op Work-Term III.
PREREQUISITE: MATH 8892.00

MATH 8894.00: Internship.
PREREQUISITE: MATH 8893.00

MATH 8895.00: Internship.
PREREQUISITE: MATH 8894.00

MATH 8896.00: Internship.
PREREQUISITE: MATH 8895.00

MATH 8897.00: Internship.
PREREQUISITE: MATH 8896.00

MATH 8898.00: Internship.
PREREQUISITE: MATH 8897.00

MATH 8899.00: Internship.
PREREQUISITE: MATH 8898.00

MATH 9890.00: Internship.
PREREQUISITE: MATH 8899.00

MATH 9891.00: Internship.
PREREQUISITE: MATH 9890.00

MATH 9892.00: Internship.
PREREQUISITE: MATH 9891.00

MATH 9893.00: Internship.
PREREQUISITE: MATH 9892.00

MATH 9894.00: Internship.
PREREQUISITE: MATH 9893.00

MATH 9895.00: Internship.
PREREQUISITE: MATH 9894.00

MATH 9896.00: Internship.
PREREQUISITE: MATH 9895.00

MATH 9897.00: Internship.
PREREQUISITE: MATH 9896.00

MATH 9898.00: Internship.
PREREQUISITE: MATH 9897.00

MATH 9899.00: Internship.
PREREQUISITE: MATH 9898.00

MATH 8800.00: Internship.
PREREQUISITE: MATH 8899.00

MATH 8801.00: Internship.
PREREQUISITE: MATH 8800.00

MATH 8802.00: Internship.
PREREQUISITE: MATH 8801.00

MATH 8803.00: Internship.
PREREQUISITE: MATH 8802.00

MATH 8804.00: Internship.
PREREQUISITE: MATH 8803.00

MATH 8805.00: Internship.
PREREQUISITE: MATH 8804.00

MATH 8806.00: Internship.
PREREQUISITE: MATH 8805.00

MATH 8807.00: Internship.
PREREQUISITE: MATH 8806.00

MATH 8808.00: Internship.
PREREQUISITE: MATH 8807.00

MATH 8809.00: Internship.
PREREQUISITE: MATH 8808.00

MATH 8810.00: Internship.
PREREQUISITE: MATH 8809.00

MATH 8811.00: Internship.
PREREQUISITE: MATH 8810.00

MATH 8812.00: Internship.
PREREQUISITE: MATH 8811.00
Medical Sciences

* Pending SPHEC approval

I. Introduction

The Medical Sciences program is a new program at Dalhousie aimed at students who wish to initiate studies in medical science as undergraduates. The program will introduce students to subjects such as human anatomy and physiology, neuroscience, epidemiology, and medical ethics.

In the first two years of the program, students will take core courses in Biology, Chemistry, Math, Physics, Physiology, Microbiology, Social Determinants of Health, and Psychology. These courses will not only provide a solid background in basic sciences, but will prepare students for admission tests for various medical sciences disciplines (such as the MCAT), meet (or exceed) the early pre-requisites for acceptance into medically related professional faculties (such as Medicine, Dentistry, and Pharmacy) locally and across the country, and meet (or exceed) the early pre-requisites required for acceptance into biomedical sciences graduate programs at Dalhousie and across the country. In their third and fourth years, students take core and elective courses in various subjects within the medical sciences. Students will graduate with a broad biomedical science background that will prepare them for a variety of clinical/professional programs, graduate school, or employment in the biotechnology industry or government.

Career path advising and the course selection process are critical to the success of the Medical Sciences undergraduate program. In addition to guidance with respect to professional schools and their entry requirements, academic advising is provided so that students are aware of what courses are required should they want to enter graduate programs in the various biomedical science disciplines. Opportunities are available to concentrate in areas of special interest (e.g., Immunology, Microbiology, Pharmacology). In addition, students may choose to loop-out and join the undergraduate programs in Biology, Biochemistry & Molecular Biology, Microbiology & Immunology, or Psychology & Neuroscience, if that better suits their interests or career goals.

II. Degree Programs

The core required courses not only provide a broad background in biomedical science but they are also designed to meet prerequisites of more advanced selective courses and to provide a guided learning experience through the program content.

The program also includes “Selective” courses in a number of relevant biomedical fields (a selective is a course from a predetermined list provided by the program director). Students will be encouraged to choose their selective courses carefully such that they result in more specialized education in a particular area of emphasis (in Immunology or Biochemistry, for example). This will allow them to take advanced courses in the chosen area in their fourth year, to pursue Honours research if they wish, and to be excellent candidates for graduate programs in a specialized field at Dalhousie or elsewhere in Canada.

The program includes four full credits in open “Electives”, which allows students to take any course offered at Dalhousie (at the appropriate level). Students will be encouraged to fulfill the Writing requirement using one or both of the Electives in the first year. Students can fulfill the elective slot with selectives if they wish, the reverse will not be allowed.

NOTE: Most second and third year core courses in the Medical Sciences curriculum have pre-requisites with minimum grade requirements in those prerequisite courses. Please consult the appropriate calendar section for these requirements.

A. BSc (20 credit) Honours in Medical Sciences

An Honours degree in the Medical Sciences program aims to prepare students for graduate studies in a number of medically related fields. The Medical Sciences Honours program will be restricted to students with a minimum cumulative GPA of 3.3. Honours students will produce a research-based thesis that will represent a full credit in their program. Students will have the flexibility to ask their Honours research advisor in a laboratory of their choice, subject to agreement. Honours students will complete a seminar in which the research project is presented. Students will be encouraged to take an elective course in a field of special interest, and to be excellent candidates for graduate programs in a specialized field at Dalhousie or elsewhere.

In addition to the courses listed below, students must ensure that they satisfy the requirements outlined in the “Requirements” section for the College of Arts and Science (page 125). For the required Writing class, students can choose from the list of “Writing Across the Curriculum” approved courses. SCI 1111 allows BSc students to fulfill this requirement in a one-semester course.

Before selecting a writing course, students are encouraged to consult the advising sheet available on the Medical Sciences program website, as some professional schools require an ENG1 course.

Requirements

In addition to the courses listed below, students must ensure that they complete the requirements outlined in the “Requirements” section for the College of Arts and Science (page 125). For the required Writing class, students can choose from the list of “Writing Across the Curriculum” approved courses. SCI 1111 allows BSc students to fulfill this requirement in a one-semester course.

Before selecting a writing course, students are encouraged to consult the advising sheet available on the Medical Sciences program website, as some professional schools require an ENG1 course.

1800 Level

- BIOL 1010.03/1011.03 or BIOL 1020.03/1021.03 or SCI 1505X/Y.18
- Integrated Science
- CHEM 1011.03/1012.03
- MATH 1215.03 (or equivalent)
- STAT 1000.03 or SCIE 1505X/Y.18

2000 Level

- BIOL 2001.03
- BIOL 2040.03
- CHEM 2441.03 or CHEM 2401.03/2402.03
- BIOC 2300.03
- CHEM 2300.03
- PHIL 2102.03
- MICU 2100.03
- NSCI 2750.03
- PHIL 2510.03

Further courses may be approved as electives at the discretion of the program director.
Selective in the fourth year. For course descriptions, please see section of the following courses in their program, one of which must be at an Advanced Students in the Medical Sciences program must include at least seven of the Selectives

III. Course Descriptions

For course descriptions, please see sections of the calendar corresponding to the department offering the course (e.g. BIOL = Biology).

Selective:

• Biochemistry/ Molecular Biology
  BIOC 2610 - Introductory Biochemistry Lab
  BIOC 3300 - Intermediate Metabolism
  BIOC 3400 - Nucleic Acid Biochemistry & Molecular Biology
  BIOC 3700 - Biomolecular Chemistry

Biology

• BIOC 2000 - Evolution
  BIOC 2090 - Advanced Cell Biology
  BIOC 3050 - Tumourigenic Organisms
  BIOC 3060 - Molecular Evolution
  BIOC 3065 - Developmental Biology
  BIOC 3322 - Parasitology
  BIOC 3525 - Medical Entomology
  BIOC 3430/ANAT 2100 - Introduction to Human Histology
  BIOC 3421/ANAT 3421 - Comparative Vertebrate Histology

Chemistry

• CHEM 2301 - Introduction to Physical Chemistry I
  CHEM 2304 - Introduction to Physical Chemistry II

Medicine and Social Sciences

INTD 3115 - Global Health in the 21st Century
PSHE 2800 - Ethics and Health Care. Patient Care
SOIA 2400 - Health & Illness Across Cultures
SOIA 2900 - Biomedical and the Illness Experience
SOIA 3131 - The Social Organization of Health Care
SOIA 3141 - Sociology of Mental Disorders
SOIA 3143 - Health, Illness, and the World System
SOIA 3145 - Gender and Health (cross-listed with GWST 3145.03)
SOIA 3147 - Social Gerontology
SOIA 3148 - The Sociology of Addiction: Drugs, Health, and Society

Medical Neuroscience

ANAT 2100/BIOC 4340 - Introduction to Human Histology
ANAT 3421/BIOC 3421 - Comparative Vertebrate Histology

Microbiology/Immunology

MICI 3141 - Virology
MICI 3149 - Physiology of Prokaryotic Cell
MICI 4115 - Immunology of Host Resistance
MICI 4218 - Clinical Microbiology

Neuroscience

NSEC 2000 - Neuroscience Principles & Methods
NSEC 2470 - Systems Neuroscience
NSEC 3270 - Developmental Neuroscience
NSEC 3670 - Genes, Brain and Behaviour

Physics

PHYS 2250 - Physics of Biological and Medical Technology

Psychology

• PSY 2090 - Research Methods in Experimental Psychology
  PSY 2090 - Social Psychology
  PSY 2090 - Developmental Psychology
  PSY 2170 - Health Psychology
  PSY 2210 - Abnormal Behaviour
  PSY 2301 - Statistical Methods I
  PSY 2370 - Brain & Behaviour
  PSY 3042 - Experimental Social Psychology
  PSY 3122 - Methods in Experimental Clinical Psychology
  PSY 3129 - Child & Adolescent Psychology

IV. List of Selectives and Advanced Selectives

Students in the Medical Sciences program must include at least seven of the following courses in their program, one of which must be at an Advanced Selective in the fourth year. For course descriptions, please see sections of the 3000 and 4000 Level

• MSCI 3115.03
• BIOC 4404.03
• Social Determinants of Health*
• Anatomy*
• Introductory Pathology*
• Introductory Epidemiology*
• MSCI Honours thesis

B. BSc (20 credit) Major in Medical Sciences

Medical Sciences offers a 4-year, 20 credit Major program. Although the program does not provide the required preparation for graduate school, it will provide an educational experience that offers a broad, interdisciplinary background in all relevant subjects in biomedical sciences. The Major degree also meets the general degree requirements for the Faculty of Science.

Requirements

In addition to the courses listed below, students must ensure that they satisfy the requirements outlined in the “Degree Requirements” section for the College of Arts and Science (page 125). For the required Writing class, students can choose from the Writing Across the Curriculum approved courses. SCIE 1111 allows BSc students to fulfill this requirement in a one-semester course. However, before selecting a writing course, students are encouraged to consult the advising sheet available on the Medical Sciences program website, as some professional schools require an ENGL course.

3000 Level

• BIOC 1010.03/1011.03 or BIOC 1020.03/1021.03 or SCIE 1505X.Y 18 Integrated Science
• CHEM 1011.03/1012.03
• MATH 2115.03 (or equivalent)
• STAT 1060.03 or SCIE 1505X.Y 18 Integrated Science

PHYS 1310.03 or PHYS 1300X/Y

2000 Level

• BIOC 2000.03
• BIOC 2010.03
• CHEM 2401.03 or CHEM 2401.03/2402.03
• BIOC 2500.03
• PHYS 2012.03
• MSCI 2100.03
• NESC 2570.03
• PHIL 2100.03

1000 Level

• BIOL 1010.03/1011.03 or BIOL 1020.03/1021.03 or SCIE 1505X.Y 18 Integrated Science
• ANAT 2160/BIOL 3430 - Introduction to Human Histology
• BIOL 2030.03
• BIOL 2020.03
• PHYC 1310.03 or PHYC 1300X/Y

Psychology

• PSYO 2501 - Statistical Methods I
• PSYO 2610 - Exercise Psychology in Health & Disease
• PSYO 2770 - Brain & Behaviour

Neuroscience

• NESC 3670 - Genes, Brain and Behaviour
• NESC 3270 - Developmental Neuroscience

Pharmacology

• BIOC 3700 - Biomolecular Chemistry
• BIOC 3400 - Nucleic Acid Biochemistry & Molecular Biology

Biochemistry

• MSCI 4115 - Immunology of Host Resistance
• MSCI 4218 - Clinical Microbiology

Medical Neuroscience

• ANAT 2100 - Introduction to Human Histology

Microbiology

• PSY 2090 - Research Methods in Experimental Psychology
• PSY 2090 - Social Psychology
• PSY 2090 - Developmental Psychology
• PSY 2170 - Health Psychology
• PSY 2210 - Abnormal Behaviour
• PSY 2301 - Statistical Methods I
• PSY 2370 - Brain & Behaviour
• PSY 3042 - Experimental Social Psychology
• PSY 3122 - Methods in Experimental Clinical Psychology
• PSY 3129 - Child & Adolescent Psychology
• PSY 3140 - Psychoneuroimmunology/Ecological Immunology
I. Introduction

The Department of Microbiology and Immunology is involved in teaching and research in several vital areas of biomedical endeavour including molecular and medical microbiology, virology, immunology and microbial genetics.

The program is designed to familiarize students with the biology and pathogenesis of viruses, bacteria, yeast and multicellular parasitic organisms. Advanced courses
and specifically with selected aspects of virology, molecular mechanisms of pathogenesis, microbial genetics, cell and molecular biology.

A set of courses in molecular genetics has been identified to meet the needs of honors Microbiology or Biochemistry students who hope to pursue further study in molecular and genetic approaches to fundamental problems. These courses provide solid grounding in bacterial and eukaryotic gene structure and function, regulation and evolution, and both practical and theoretical presentations of recombinant DNA methods (genetic engineering).

They can be taken along with courses in metabolism, enzymology, bacteriology, virology and immunology and provide a good practical grounding for fields as diverse as genetic diagnosis and gene therapy, forensics, industrial microbiology and molecular evolution (see below and the Biochemistry listings and consult departmental advisors).

The Department also has a significant teaching program in Cellular and Molecular Immunology. The Immunology program is designed for students interested in fundamental questions in molecular immunology, tumor immunology, autoimmunity or inflammation, and defenses against microbial infection.

These programs provide the education needed for graduate studies or for professional activities after graduation in microbiology and/or immunology.

II. Degree Programs

There are 20 Credit Major and Double Major programs in Microbiology and Immunology but no 15 credit degree is offered. MCT 2000.03 is a prerequisite for most other microbiology courses offered in this Department. Students oriented in an Honours program (see below) must consult a departmental advisor, preferably prior to registration for second year courses. Biology Majors are advised that many courses in Microbiology and Immunology do count toward a BSc in Biology even though they are not cross-listed with the Biology Department. In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 325 of this calendar.

The Department wishes to draw the attention of students to the course, SCIE 1111.00, which fulfills the writing course requirement for BSc students. However, the “subject groupings” requirements must still be met. The subject groupings are often satisfied within the first year.

A. BSc (20 credit) Honours in Microbiology and Immunology

This program is designed to give students the best possible preparation for future graduate work or a professional career in microbiology or immunology. Students applying for admission to this program must normally have obtained a grade of B in five and a minimum grade of B- in the sixth course.

Departmental Requirements

1000 level
- BIOC 1010.03/1011.03 or BIOC 1020.03/1021.03
- CHEM 1000.03 or MATH 1215.03 and MATH 1010.03 or STAT 1060.03

2000 level
- MCT 2100.03
- BIOC 2020.03
- BIOC 2300.03 and 2810.03
- CHEM 2401.03 and CHEM 2402.03

3000 level
- BIOC 3400.03
- MCT 3114.03
- MCT 3115.03
- MCT 3119.03

4000 level
- MCT 4000.06
- One half credit from a fourth year level MCT course

Notes:
- One half credit from any of the fourth year level courses listed below
- A minimum of one and a half additional credits (to make a total of nine) are to be taken from the list provided below (the courses listed are all considered to belong to the discipline of microbiology and/or immunology):
  - MCT 2115.03, 3244.03, 3620.03, 4027.03, 4033.03, 4100.03, 4114.03, 4115.03, 4116.03, 4118.03, 4210.03, 4210.03, 4210.03, 4302.03
  - BIOC 4010.03, 4800.03, 4801.03, 4501.03, 4810.03
  - BIOS 2406.03, 3101.03, 3102.03, 3122.03
  - PSYVZ 3180.03
  - FOSC 3080.03

B. BSc Combined Honours in Microbiology and Immunology and Biochemistry and Molecular Biology

Students in this program must complete 11 credits above the 1000 level in Microbiology and Immunology and Biochemistry and Molecular Biology.

Departmental Courses Required at Upper Levels
- CHEM 2401.03 and 2402.03
- BIOC 2500.03 and 2510.03
- MCT 2100.03
- BIOC 2300.03 and 2301.03
- BIOC 3300.03 and 3400.03, 3500.03
- MCT 3114.03, 3115.03, 3119.03
- one credit from BIOC 48XX, 45XX, 44XX, 45XX, or 47XX
- half credit from MCT 43XX

Either MCT 4900.06 or BIOC 4604.03 and BIOC 4605.03 (either of which, with approval, can be carried out in either department).

C. BSc Combined Honours in Immunology and Microbiology and Biology

Students in this program must complete the core requirements of each department. Students are required to maintain an average grade of B in core courses with no grade lower than B- (see note 1 above). BIOC 1010.03/1011.03 or BIOC 1020.03/1021.03 or BIOL 1001.06 should be taken in year one, and MCT 2100.03 in year two. Research thesis work can be carried out in either Department, subject to the approval of the Undergraduate Studies Committee.

D. 20 Credit Major and Double Major in Microbiology and Immunology

Students should consult a departmental Undergraduate Studies Advisor.

Departmental Core Courses Required

1000 level
- BIOC 1010.03/1011.03 or BIOC 1020.03/1021.03
- CHEM 1001.03/1012.03
- MATH 1000.03 or MATH 1215.03 and MATH 1010.03 or STAT 1060.03

2000 level
- MCT 2100.03, BIOC 2020.03, BIOC 2300.03 and 2301.03, BIOC 2500.03, BIOC 2610.03, CHEM 2401.03 and CHEM 2402.03.
Microbiology and Immunology

Microbiology or Immunology laboratories to engage in BSc. Medical Science (pending MPHEC approval for 2014). Students in the BSc. Medical Science program take a course offerings of the Bachelor of Science (Medical Sciences) program (pending). The Department of Microbiology and Immunology contributes to the course requirements, eligibility, how to apply, deadlines and other related information.

G. Minors available to students in Microbiology and Immunology

Minor programs allow students to develop subject specialties in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year major or concentration honours program (including co-op programs). Students in a 20-credit BSc program in Microbiology and Immunology may choose to include a Minor selected from the list of approved Minors beginning on page 129. Honours research. If BSc. Medical Science undergraduates take sufficient Microbiology or Immunology electives in their final year they are well prepared to apply to the Microbiology and Immunology Graduate Studies Program.

III. Course Descriptions

For more detailed information on the following courses please see the departmental webpage: http://microbiology.medicine.dal.ca For more detailed information on the following courses please see the departmental webpage: http://microbiology.medicine.dal.ca

MICI 1050.03: Basic Microbiology and Immunology for Pharmacy.

This course is only for pharmacy students and involves problem based learning materials, lectures and laboratory sessions (demonstrations and exercises). Topics include: concepts of antibiotics and immunity, basic principles of microbial structure, physiology, and genetics in relation to microbial pathogenesis.

FORMAT: Lecture 3 hours, tutorial 4 hours. 3 weeks.

PREREQUISITE: BIOL 1000X or (BIOL 1010 or BIOL 1020 and BIOL 1011 or BIOL 1021) or instructor's consent.

MICI 1100.03: Health Science Microbiology.

An introduction to microbiology and infectious diseases designed for healthcare professionals. It includes a study of the structure and physiology of microorganisms, the ways microorganisms cause disease in man and the way they affect man's well being.

NOTE: This course is also offered by distance education. 

FORMAT: Lectures 3 hours.

RESTRITION: This class is restricted to students in 2nd Year Nursing, Kinesiology and Diagnostic Cytopathology.

MICI 1200.03: Introduction to General and Oral Microbiology.

See course description in the Dental Hygiene section of the Dentistry, Law and Medicine Calendar (DEEP 2013/14). 

MICI 2100.03: Introductory Microbiology and Immunology.

An introduction to the basic concepts of microbiology and immunology. Topics include: structure, genetics and biochemistry of microorganisms, basic immunology and host defence mechanisms. The course is designed to interrelate the major research themes within the Department (bacterial and microbial pathogenesis, immunology, microbial and molecular genetics, virology and cancer biology).

NOTE: Students cannot enter this course until labs have commenced.

FORMAT: Lecture 3 hours, lab 3 hours.

PREREQUISITE: Grade B or better in BIOL 1010X or BIOL 1011 and CHEM 1013 or BIOL 3012 or CHEM 3012.

MICI 2115.03: Human Organs and Tissues.

Using a histology approach, students look at how tissues and organs are constructed and function at the cellular level normally and in disease. The course does not cover all histology topics. Instead, the subject matter has been selected for its relevance and potential for complementing advanced courses in microbiology/immunology.

FORMAT: Lecture 3 hours.

PREREQUISITE: Grade B or better in MICI 2001-03.

MICI 3024.03: Microscopy.

Biological ultrastructural analysis concentrating on transmission and scanning electron microscopy. Topics include: physical and chemical principles governing technical procedures such as fixation, staining, freeze-fracture, immunocytochemistry, autoradiography, X-ray microanalysis and photography. During laboratory periods, students have the opportunity through individual projects to participate in some techniques covered in lectures.

FORMAT: Lecture 3 hours, lab project.

PREREQUISITE: Grade B or better in MICI 2100.03 and BIOL 2020.03.

CROSS-LISTING: BIOL 2024.03.

MICI 3143.03: Virology.

Virology play important roles in infectious diseases and cancer as well as in model systems for gene regulation, molecular evolution and gene therapy. Topics include: virus structure, assays, classification, gene organization and expression,
Inflammation.

MICI 4100.03: Processes and Mediators of Inflammation.
This advanced course focuses on the cellular and molecular mechanisms of inflammation and consists of lectures and student presentations based on review articles and current research papers. Topics include: inflammatory mediators and receptors, complement, starch, tissue remodeling and transplant resolution. Current research questions and emerging treatments are emphasized. FORMATT: Lecture/presentation/discussion.

PREREQUISITE: MICI 3119.03 with a grade of B+ or better and instructor’s consent is required.

MICI 4114.03: Advanced Topics in Molecular and Medical Virology.
This advanced course focuses on selected aspects of molecular and medical virology and consists of lectures and student presentations based on review articles and current research papers. Topics include: hepatitis C virus and innate immunity, influenza virus pathogenesis, virus interactions with host cells, viruses as vectors for gene therapy and vaccines.

FORMATT: Lecture/presentation/discussion. 3 hours

PREREQUISITE: Students enrolled in the Fall semester, but must attend the first class where final attendance is determined. Restricted enrollment based on performance in MICI 3114.03 (minimum A- or instructor’s consent) CROSS-LISTING: MICI 5114.03

MICI 4115.03: Immunology of Host Resistance.
This advanced course focuses on mechanisms involved in the host immune response to pathogens and tumor cells and consists of lectures and student presentations based on review articles and current research papers. Topics also include: allergic inflammation and transplant immunology.

FORMATT: Lecture/discussion. 3 hours

PREREQUISITE: Minimum grade of B+ in MICI 3115.03 or instructor’s consent

MICI 4116.03: Current Topics in Mucosal Immunology.
This advanced course focuses on the mucosal immune system, which maintains a state of tolerance to environmental antigens while mounting a strong immune response to infectious agents. The course consists of lectures and student presentations based on review articles and research papers. Topics include: innate immune mechanisms in the gastrointestinal tract and respiratory and genitourinary systems.

PREREQUISITE: MICI 3115.03 with a grade of B+ or better or instructor’s consent.

CROSS-LISTING: MICI 5116.03

MICI 4118.03: Molecular Bacterial Pathogenesis.
This advanced course focuses on the molecular basis of bacterial pathogenesis and consists of lectures and student presentations based on landmark articles and current research papers. Topics include: regulation of cytokines, antibody diversity by somatic hypermutation and antigen-driven affinity maturation, anti-inflammatory/anti-tumour mechanisms, tumor suppressors, cancer metastasis and angiogenesis, cell cycle control, and human papillomavirus infection.

FORMATT: Lecture/presentation/discussion.

PREREQUISITE: MICI 3115.03 with a grade of B+ or better or instructor’s consent.

CROSS-LISTING: MICI 5118.03

MICI 4210.03: Clinical Bacteriology.
This advanced course covers all aspects of clinical microbiology including bacteriology, virology, parasitology, mycology and molecular diagnostics. The emphasis will be placed on bacteriology. Topics include epidemiology and transmission, laboratory management and identification, antimicrobial testing and resistance, treatment and prevention of infectious diseases.

FORMATT: Lecture.

PREREQUISITE: A grade of B+ or better in MICI 3119.03 or Instructor’s consent.

EXCLUSION: MICI 3118

MICI 4211.03: Medical Virology.
This advanced course covers all aspects of clinical microbiology including bacteriology, virology, parasitology, mycology and molecular diagnostics. The emphasis will be placed on bacteriology. Topics include epidemiology and transmission, laboratory management and identification, antimicrobial testing and resistance, treatment and prevention of infectious diseases.

FORMATT: Lecture.

PREREQUISITE: A grade of B+ or better in MICI 3119.03 or Instructor’s consent.

EXCLUSION: MICI 3118.

MICI 4200X.06: Directed Research Project.
Students spend at least one day per week performing laboratory research in the lab of approved departmental faculty. The course is not for students in regular BSc program. Approval is required from the departmental undergraduate committee.

NOTE: Credit can only be given for this course if X and Y are completed in the same term and partial credit cannot be given for a single term.
I. Introduction

The last four decades have witnessed the emergence of a new, interdisciplinary field called Neuroscience. Its primary goal is the understanding of the brain. Neuroscience is a rapidly developing research area which includes all aspects of the structure and function of nervous systems. Neuroscience involves a variety of experimental strategies to understand nervous systems. These include molecular, biochemical, anatomical, physiological, and developmental approaches. Although firmly grounded in the natural sciences, the scope of Neuroscience also encompasses fundamentally important philosophical issues, such as the nature of human thought and its mechanism. The programs outlined below represent all of these approaches, with an emphasis on behaviour as the adaptive product of neural activity. Knowledge obtained from research in Neuroscience is applied to a variety of human health problems, including Alzheimer disease, Parkinson disease, and a variety of drug- or injury-induced behavioral disorders. Research in Neuroscience is also contributing new information related to the major psychiatric disorders, including affective disorders and the schizophrenias.

II. Degree Programs

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar.

A. BSc or BA (20 credit) Honours in Neuroscience

This program, which is offered through the Department of Psychology and Neuroscience, is intended to serve as a preparation for graduate work in Neuroscience, biological psychology, medicine, human communication disorders and related fields. Its interdisciplinary nature is reflected in the participation of faculty from several departments in the program.

Structure

In the first year of study, students are required to take courses which provide a firm grounding in the physical and biological sciences. In subsequent years, the program includes credits in courses drawn from Neuroscience, Psychology and Biology. These include a number of required core courses that emphasize the acquisition and application of laboratory skills.

It is recommended that students interested in taking an Honours degree in Neuroscience follow the course sequence specified for Honours students. They should consult with Dr. T. Perrot in January of their third year and complete a departmental Honours Application Form. Admission to Honours in January will require a grade of B or better in NESC 2007.03 and an A- average in the last six

---

Neuroscience

Location: Department of Psychology and Neuroscience

Website: http://www.dal.ca/neuroscience

Program Advisors

To contact a program advisor, please go to the Psychology and Neuroscience website. For a complete listing of faculty members in the Department of Psychology and Neuroscience, please see the Psychology Program section on page 565.

542 Neuroscience
.completed Neuroscience half credits. Applications may be delayed until the end of the third year, in which case, a grade of B- or better in NES 3000.03 and an A- average in the last nine completed Neuroscience half credits will be required. 

Potential Neuroscience students should try to declare a their major and begin laying the groundwork for their thesis research (e.g., background reading, acquiring laboratory methodology) as early as possible in their third year. The supervisor should be a member (or eligible for membership) in the Neuroscience Institute. A detailed description of the Honours application process may be found on the departmental website www.dal.ca/psychandneuro

Grade Requirements

All students wishing to take Psychology/Neuroscience courses numbered 2000 or above for which Introductory Psychology or Introductory Biology or DISP is a prerequisite must have a grade of B- in the required course(s) (PSY 1011.03 or PSY 1021.03 and PSY 1012.03 or PSY 1022.03, or BIOC 1010.03 or 1020.03 and BIOL 1011.03 or 1021.03, or SCIE 1515X/Y, 1520X/Y, or 1540X/Y.27.

NOTE: PSY 2501.03 (Statistical Methods I) does not fulfill any part of the Faculty of Science Mathematics requirement.

Departmental Requirements

1000 Level
• MATH 1000.03 (preferred) or MATH 1215.03
• One other half credit in Mathematics (ideally, but not necessarily, MATH 1010.03)
• BIOC 1010.03 or BIOC 1020.03 and BIOL 1011.03 or BIOC 1021.03
• CHEM 1011.03 or CHEM 1021.03 
• Either PSY 1011.03 or PSY 1012.03 or PSY 1021.03 or PSY 1022.03, or PHYC 1280.03/1290.03 or 1300X/1300Y; or
• Or m in last of the above, SCIE 1515X/Y, 1520X/Y or 1540X/Y.27.

Students are strongly recommended to take both PHYC 1280.03/1290.03 or PSYC 1300X/1300Y and PSY 1011.03 or PSY 1021.03 prior to finishing their degree.

2000 Level
• NESC 2007.03
• NESC 2470.03
• NESC 2570.03
• PSY 2501.03 (or STAT 2080.03)
• BIOL 2020.03
• Two half credits selected from NESC 2130.03, 2140.03, 2150.03, 2160.03, BIOC 2300.03, BIOL 2300.03, PHYC 2280.03

3000 Level
• Two half credits of laboratory courses selected from NESC 3044.03, 3051.03, 3170.03, 3161.03, 3370.03, 3371.03, 3440.03, 3775.03
• PSY 3502.03
• At least one additional half credit selected from NESC 3043.03, 3102.03, 3103.03, 3113.03, 3114.03, 3120.03, 3121.03, 3140.03, 3170.03, 3180.03, 3190.03, 3220.03, 3237.03, 3240.03, 3257.03, 3260.03, 3262.03, 3266.03, 3270.03, 3270.03, 3275.03, 3280.03, BIOC 3200.01, BIOL 3020.03

4000 Level
• NESC 4500X/Y.06
• Two half credits selected from NESC 4000.03, 4007.03, 4070.03, 4101.03, 4106.03, 4170.03, 4173.03, 4185.03, 4230.03, 4374.03, 4376.03, 4470.03
• Two additional half credits from NESC 3005- or 4000-level courses
• Honours Qualifying Exams

B. BSc or BA (20 credit) Combined Honours in Neuroscience

It is possible for students to take an Honours degree combining Neuroscience with another Science subject (other than Psychology) such as Biology or Biochemistry. Students proposing to take such a course of study must consult with an Honours advisor in both departments to arrange program details.

If Neuroscience is chosen as the primary subject in a Combined Honours degree, the following courses are required.

1000 Level
• MATH 1000.03 (preferred) or MATH 1215.03
• One other half credit in Mathematics (ideally, but not necessarily, MATH 1010.03)
• BIOC 1010.03 or BIOC 1020.03 and BIOL 1011.03 or BIOC 1021.03
• CHEM 1011.03 or CHEM 1021.03
• Either PSY 1011.03 or PSY 1012.03 or PSY 1021.03 or PSY 1022.03, or PHYC 1280.03/1290.03 or 1300X/1300Y; or
• Or, in lieu of the above, SCIE 1515X/Y, 1520X/Y, or 1540X/Y.27 with a B- in the Psychology or Biology component.

Students are strongly recommended to take both PSY 1011.03 or PSY 1021.03 and PSY 1012.03 or PSY 1022.03, and PHYC 1280.03/1290.03 or PHYC 1300X/1300Y prior to finishing their degree.

2000 Level
• NESC 2007.03
• NESC 2470.03
• NESC 2570.03
• PSY 2501.03 (or STAT 2080.03)
• BIOL 2020.03*
• One half credit selected from NESC 2130.03, 2140.03, 2150.03, 2160.03, BIOC 2300.03, BIOL 2300.03, PHYC 2280.03

3000 Level
• Two half credits of laboratory courses selected from NESC 3044.03, 3051.03, 3170.03, 3161.03, 3370.03, 3371.03, 3440.03, 3775.03

4000 Level
• NESC 4500X/Y.06
• Two half credits selected from NESC 4000.03, 4007.03, 4070.03, 4101.03, 4106.03, 4170.03, 4173.03, 4185.03, 4230.03, 4374.03, 4376.03, 4470.03
• Honours Qualifying Exams

If Neuroscience is chosen as the secondary subject in a Combined Honours degree, the following second and third-year courses are required.

2000 Level
• NESC 2007.03
• NESC 2470.03
• NESC 2570.03
• PSY 2501.03 (or STAT 2080.03)
• BIOL 2020.03*

3000-4000 Level
• Two half credits of laboratory courses selected from NESC 3044.03, 3051.03, 3170.03, 3161.03, 3370.03, 3371.03, 3440.03, 3775.03
• One additional half credit (or two half credits in Neuroscience courses in the 3000-4000 level)

* If students undertake another program of study that requires BIOL 2020.03, they should substitute another half-credit elective in a Neuroscience topic at the 2000 level for BIOL 2020.03.

C. BSc or BA (20 credit) Major in Neuroscience

This program is intended to provide a four-year survey of Neuroscience, and is designed for students not anticipating subsequent experimental, graduate-level training in Neuroscience or related disciplines. The major program thus differs from the Honours program in not having thesis (and related) requirements, and is having fewer credits of required Neuroscience courses in each of the second, third and fourth years.

Grade Requirements

All students wishing to take Psychology/Neuroscience courses numbered 2000 or above for which Introductory Psychology or Introductory Biology or DISP is a prerequisite must have a grade of B- in the required course(s) (PSY 1011.03 or PSY 1021.03 and PSY 1012.03 or PSY 1022.03, or PHYC 1280.03/1290.03 or PHYC 1300X/1300Y).
Neuroscience

- Two more half credits selected from NESC 3043.03, 3052.03, 3131.03,
- Two half credits of laboratory courses selected from NESC 3044.03, 3051.03, 3000/4000 level
- BIOL 2020.03*
- NESC 2570.03
- NESC 2470.03
- NESC 2007.03

2000 level
- BIOL 2030.03, 3020.03, PHYC 2250.03.

Note: The following can be counted as NESC courses: BIOC 2300.03, 3200.03, 3137.03, 3161.03, 3370.03, 3371.03, 3440.03, 3757.03.

If Neuroscience is chosen as the primary subject in a Double Major degree, the following courses are required.

1000 level
- MATH 1000.03 (preferred) or MATH 1215.03
- One other half credit in Mathematics (ideally, but not necessarily, MATH 1010.03)
- BIOL 1010.03 or BIOL 1020.03 and BIOL 1011.03 or BIOL 1021.03
- CHEM 1011.03 or BIOL 1020.03
- PSYO 1011.03* and PSYO 1021.03 or 1022.03
- Or, in lieu of the above, SCI151XV/Y, 1520XV/Y, or 1540XV/Y.

Students are strongly recommended to take PHYC 1280.03/1290.03 or PHYC 1300X.06 prior to finishing their degree.

2000 level
- NESC 2007.03
- NESC 2470.03
- NESC 2570.03
- PSYO 2501.03 or STAT 2080.03
- BIOL 2020.03*
- Two half credits selected from: NESC 2130.03, 2140.03, 2150.03, 2160.03, 2180.03, 2374.03, 2375.03
- Two half credits of laboratory courses selected from NESC 3044.03, 3051.03, 3000/4000 level
- BIOL 2020.03*
- PSYO 2501.03 (or STAT 2080.03)
- OR, in lieu of the above, SCI151XV/Y, 1520XV/Y, or 1540XV/Y.27

If Neuroscience is chosen as the secondary subject in a Double Major degree, the following courses are required.

1000 level
- MATH 1000.03 (preferred) or MATH 1215.03
- One other half credit in Mathematics (ideally, but not necessarily, MATH 1010.03)
- BIOL 1010.03 or BIOL 1020.03 and BIOL 1011.03 or BIOL 1021.03
- CHEM 1011.03 or BIOL 1020.03
- PSYO 1011.03* or 1021.03 and PSYO 1022.03 or 1023.03
- Or, in lieu of the above, SCI151XV/Y, 1520XV/Y, or 1540XV/Y.

Students are strongly recommended to take PHYC 1280.03/1290.03 or PHYC 1300X.06 prior to finishing their degree.

2000 level
- NESC 2007.03
- NESC 2470.03
- NESC 2570.03
- PSYO 2501.03 (or STAT 2080.03)
- BIOL 2020.03*
- OR, in lieu of the above, SCI151XV/Y, 1520XV/Y, or 1540XV/Y.27

If students undertake, as part of a Double Major degree, another program of study that requires BIOL 2020.03, they should substitute another half-credit elective in a Neuroscience topic at the 2000 level for BIOL 2020.03.

E. Minor in Neuroscience

Students in other 20 credit degree programs may choose to include a Minor in Neuroscience in their program. Requirements are outlined in the College of Arts and Science Minors section of this Calendar beginning on page 129.

F. Minors available to students in Neuroscience

Minor programs allow students to develop subject specialities in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year Major or Concentrated Honours program (including co-op programs). Students in a 20 credit BSc program in Neuroscience may choose to include a Minor selected from the list of approved Minors beginning on page 132 in this Calendar. Note that courses counted toward your Major or Honours program cannot be used to fulfil the requirements of a Minor program.

G. BSc/Engineering or BA/Engineering Concurrent Programs

Students will normally complete the requirements for a 15 Credit BSc or 15 Credit BA, and the first two years of engineering studies leading to the Diploma in Engineering. The concurrent program can be completed in three years. Details are provided in the College of Arts and Science Degree Requirements starting on page 125 of the calendar.

H. Diplomas, Certificates, and Language Proficiency Certificates

In combination with a BA or BSc there are certificates or diplomas that can be obtained to emphasize areas of proficiency. Courses counted toward a Major, Honours or Minor program may also be used to fulfill the requirements of a Certificate. For a complete list and details refer to the College of Arts and Science Degree Requirements starting on page 152 of the calendar.

Certificate in Animal Behaviour

(Contract Dir. Shelley Adams, shelley.adams@cidal.ca) The Certificate program is a collaborative effort of both the Biology and the Psychology and Neuroscience departments. It provides students an opportunity to take, within their BA or BScHonors or Major program, a set of courses and a research project that will accord them an animal behaviour specialization. Completion of the Certificate will be shown on a student’s transcript.
Note: It is the responsibility of students in the Certificate Program to complete the course sequence specified, and to provide the Certificate Coordinator with confirmation that the necessary courses have been taken, by the end of the examination period in their final year of study.

**Certificate requirements:**

1. A minimum grade of B- is required in all mandatory courses:
   - NESC/PSYO 2100.03: Animal Behaviour
   - PSYO 2100.03: Statistical Methods for Data Analysis and Inference
   - BIOL 3602.03: Behavioral Ecology or PSYO/NESC 3162.01: Advanced Animal Behaviour

2. A grade of B- or better in full credit of elective courses chosen from the following list. One of the full credit must be at the 3000/4000 level.

### 2000 level
- ANSC 2003.03: Companion Animal Behaviour
- NESC/PSYO 2140.03: Learning
- NESC/PSYO 2470.03: Systems Neuroscience

### 3000 level
- BIOL 3127.03: Embryology
- BIOL 3622.03: Ornithology
- BIOL 3624.03: Ecology and Evolution of Fishes
- BIOL 3625.03: Field Studies of Marine Mammals
- BIOL 3623.03: Applied Method in Fish Ecology
- NESC/PSYO 3000.03: Independent Research in Modern Psychology (Animal Behaviour topic)
- NESC/PSYO 3001.03: Directed Research Project in Psychology (Animal Behaviour topic)
- NESC/PSYO 3140.03: Neurobiology and Learning
- NESC/PSYO 3144.03: Laboratory Methods of Learning and Conditioning
- NESC/PSYO 3152.03: Advanced Animal Behaviour
- NESC/PSYO 3161.03: Neuroethology
- NESC/PSYO 3170.03: Hormones and Behaviour
- NESC/PSYO 3180.03: Psychoneuroimmunology/Ecological Immunology
- NESC/PSYO 3190.03: Genes, Brain and Behaviour

### 4000 level
- NESC/PSYO 4140.03: Topics in Behavioural Biology
- BIOL 4000.03: Marine Mammalogy
- BIOL 4132.03: Backcountry in Ecology
- BIOL 4004.03: Special Topics (Animal Behaviour topic)
- BIOL 4006.03: Special Topics (Animal Behaviour topic)

3. A grade of B- in one full credit or more of independent research in Animal Behaviour:
   - The research topic must be pre-approved by the Certificate Coordinator prior to the start of their research course (i.e., NESC/PSYO 3000.06, NESC/PSYO 3001.03, NESC/PSYO 4000.03, BIOL 4000.03, BIOL 4006.03, or BIOL 4008.03).
   - Honour students are encouraged to complete their Honours thesis on a topic in Animal Behaviour to fulfill this requirement.
   - Students are also encouraged to further develop their study design and analysis skills by taking additional courses such as BIOL 4061.03 (Design of Biological Experiments) or BIOL 4062.03 (Analysis of Biological Data).

4. Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are preparing for graduation. Students are also encouraged to further develop their study design and analysis skills by taking additional courses such as BIOL 4061.03 (Design of Biological Experiments) or BIOL 4062.03 (Analysis of Biological Data).

**III. Course Descriptions**

In 2006/2007, the full-credit introduction to Psychology courses were divided into two half-credit courses. PSYO 1000X/Y became PSYO 1011.03 and 1021.03, and PSYO 1001X/Y became PSYO 1011.03 and 1021.03. If a course now requires PSYO 1011.03 or 1021.03 of PSYO 1022.03 as prerequisites, this requirement may also be met by either PSYO 1012.03 or PSYO 1012.03.

**NESC 2007.03: Neuroscience Principles and Methods.**

This course introduces methods used to investigate contemporary issues in Neurobiology. Characteristics of these methods, including their strengths and limitations, are presented conceptually in lectures, and then practically in the form of supervised laboratory exercises where students implement in the lab what they encountered first in lectures.

**FORMAT:** Lecture 3 hours, Research Lab 2 hours

**PREREQUISITE:** PSYO 1011.03 or PSYO 1021.03 and PSYO 1012.03 or PSYO 1022.03, or SCIE 1515X/Y, 1520X/Y, or 1540X/Y, or BIOL 1001.03 or 1021.03 and BIOL 1011.03 or 1021.03 (with a grade of B- or better)

**EXCLUSION:** PSYO 2000.03

**NESC 2130.03: Introduction to Cognitive Psychology.**

Lectures focus on the processes involved in transforming sensory information into the meaningful everyday world that we know. Initially, emphasis is on the sensory system, and how information within that system is structured and organized, followed by a consideration of the character of internal representations used in thinking and remembering.

**FORMAT:** Lecture 3 hours

**PREREQUISITE:** PSYO 1011.03 or PSYO 1021.03 and PSYO 1012.03 or PSYO 1022.03, or SCIE 1515X/Y, 1520X/Y, or 1540X/Y, or BIOL 1001.03 or 1021.03 and BIOL 1011.03 or 1021.03 (with a grade of B- or better)

**CROSS-LISTING:** PSYO 2130.03

**NESC 2140.03: Learning.**

Lectures focus on several goals: (1) providing general principles of learning; (2) understanding the behaviour of particular species; (3) direct application to human problems. Emphasis is on understanding why researchers in animal learning do what they are currently doing (given the goals and the historical context).

**FORMAT:** Lecture 3 hours

**PREREQUISITE:** PSYO 1011.03 or PSYO 1021.03 and PSYO 1012.03 or PSYO 1022.03, or SCIE 1515X/Y, 1520X/Y, or 1540X/Y, or BIOL 1001.03 or 1021.03 and BIOL 1011.03 or 1021.03 (with a grade of B- or better)

**CROSS-LISTING:** PSYO 2140.03

**NESC 2150.03: Perceptual Processes.**

Perception deals with the way in which our senses provide us with information about our environment. This course focuses on the process by which sensory experiences are coded, how they are interpreted by the nervous system, and how experience modifies perception.

**FORMAT:** Lecture 3 hours

**PREREQUISITE:** PSYO 1011.03 or PSYO 1021.03 and PSYO 1012.03 or PSYO 1022.03, or SCIE 1515X/Y, 1520X/Y, or 1540X/Y, or BIOL 1001.03 or 1021.03 and BIOL 1011.03 or 1021.03 (with a grade of B- or better)

**CROSS-LISTING:** PSYO 2150.03

**NESC 2160.03: Animal Behaviour.**

Using concepts from behavioural biology and psychology, animal behaviourists attempt to explain why animals behave the way they do. The course examines topics such as mating and social systems, mate choice, the evolution of behaviour, and animal communication. The behaviour of a wide range of animals is studied.

**FORMAT:** Lecture 3 hours

**PREREQUISITE:** PSYO 1011.03 or PSYO 1021.03 and PSYO 1012.03 or PSYO 1022.03, or SCIE 1515X/Y, 1520X/Y, or 1540X/Y, or BIOL 1001.03 or 1021.03 and BIOL 1011.03 or 1021.03 (with a grade of B- or better)

**CROSS-LISTING:** PSYO 2160.03

**NESC 2470.03: Systems Neuroscience.**

This course provides an introduction to the functional systems of the brain. We examine neural systems (e.g., the sensory systems, motor systems, neurotransmitter-specific systems) individually. We explore their anatomy and function, neurological properties that make each unique, and factors that are common to all neural systems (e.g., development and plasticity).

**FORMAT:** Lecture 3 hours

**PREREQUISITE:** PSYO 1011.03 or PSYO 1021.03 and PSYO 1012.03 or PSYO 1022.03, or SCIE 1515X/Y, 1520X/Y, or 1540X/Y, or BIOL 1001.03 or 1021.03 and BIOL 1011.03 or 1021.03 (with a grade of B- or better)

**CROSS-LISTING:** PSYO 2470.03

**EXCLUSION:** PSYO 2750.03
CROSS-LISTING: PSYO 3043.03
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and one of NESC/PSYO 2140.03 or NESC/PSYO 2470.03 or PSYO 2770.03
FORMA T: PSYO 3043.X/Y
EXCLUSION: PSYO 3042.03
NESC 3051.03: Sensory Neuroscience I. Vision.
This course examines the neural basis for the perception of light, colour, movement, depth, and form. The course covers developmental events important for vision, and the extent to which vision is constrained by anatomical and physiological development.
FORMA T: Lecture 3 hours, Research Lab 1 hour
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, NESC/PSYO 2470.03 or PSYO 2770.03, and NESC/PSYO 2150.03
CROSS-LISTING: PSYO 3051.03

NESC 3052.03: Sensory Neuroscience II. Hearing and Speech.
This course explores hearing at levels that include stimulus parameters and their psychophysical correlates, middle ear function, cochlear biophysics, central auditory neuropathology, and principles of speech perception. We emphasize mechanisms of normal hearing and speech, but address pathology whenever it helps us understand the relation between neuropathology and perception.
FORMA T: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and NESC/PSYO 2470.03
CROSS-LISTING: PSYO 3052.03

NESC 3131.03: Research Methods in Attention.
The methods, findings, and theories that underlie our understanding of attention (alertness, preemption, selection, and control of information processing) are covered. Behavioural and neuroscientific evidence as well as computational models are examined in the lectures. Laboratories emphasize behavioural methods used to isolate and reveal the components of attention.
FORMA T: Lecture 3 hours, Research Lab 2 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, and NESC/PSYO 2470.03 or PSYO 2780.03
CROSS-LISTING: PSYO 3132.03
EXCLUSION: NESC/PSYO 3130.06

NESC 3132.03: Research Methods in Visual Cognition.
Visual cognition is the study of how we extract meaning from our visual environment and use it to direct our behaviour. Emphasis is placed on object, face, and word recognition as revealed by normal behaviour, and by neuropsychological techniques and neuropsychological studies of brain-damaged individuals who have lost these recognition abilities.
FORMA T: Lecture 3 hours, Research Lab 2 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, and NESC/PSYO 2470.03 or PSYO 2780.03
CROSS-LISTING: PSYO 3132.03
EXCLUSION: NESC/PSYO 3130.06

NESC 3133.03: Research Methods in Memory.
This course examines human memory from the perspective of cognitive psychology and, to a lesser extent, cognitive neuroscience. Lectures emphasize cognitive approaches to the study of memory with an explicit focus on empirical research methods, data, and interpretation of results.
FORMA T: Lecture 3 hours, Research Lab 2 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, and NESC/PSYO 2470.03 or PSYO 2780.03
CROSS-LISTING: PSYO 3133.03
EXCLUSION: NESC/PSYO 3130.06
CROSS-LISTING: PSYO 3170.03

sex differences, and stress are also examined. Hormones control neural and behavioural development, sexual, aggressive, and other aspects of behaviour. How neurotransmitters, cytokines, and stress hormones interact in both vertebrates and invertebrates. Evolutionary forces that have led to the existence of these interactions are also examined.

FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 3165.03 or NESC 2160.03, or BIOL 2010.03, OR BIOL 2530.03
CROSS-LISTING: PSYO 3180.03
EXCLUSION: NESC/PSYO 3130.06

NESC 3173: Research Methods in Cognitive Neuroscience.

An overview of neuroimaging and other techniques of cognitive neuroscience (including fMRI, ERP, and others) focusing on how they work, how they are applied, and their inherent limitations. Labs include experience collecting and analysing ERP data, demonstrations of fMRI scanning, and analyses of fMRI data.

FORMAT: Lecture 3 hours, Research Lab 2 hours
PREREQUISITE: PSYO 2165.03 or PSYO 3165.03; PSYO 2501.03 or STAT 2470.03, or PSYO 2770.03
CROSS-LISTING: PSYO 3173.03
EXCLUSION: NESC/PSYO 3134.03

NESC 3180.03: Psychoneuroimmunology/Ecological Immunology.

Our behaviour can influence how well we resist disease, and infection can alter behaviour. This course examines how immune systems and nervous systems interact in both vertebrates and invertebrates. Evolutionary forces that have led to the existence of these interactions are also examined.

FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 3165.03 or NESC 2160.03, and either NESC/PSYO 2470.03 or PSYO 2770.03, OR BIOL 2100.03, OR BIOL 2530.03
CROSS-LISTING: PSYO 3180.03
EXCLUSION: NESC/PSYO 2190.03

NESC 3190.03: Psycholinguistics.

Explores the cognitive and neural bases of human language processing. Topics include: human language and other communication systems; phonology; morphology; semantics; syntax; discourse; first and second language acquisition; relationship of language to general cognitive functions such as music and mathematics; signed languages such as American Sign Language, and nonlinguistic gesture.

FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 3165.03 or NESC 2160.03, and either NESC/PSYO 2470.03 or PSYO 2770.03
CROSS-LISTING: PSYO 3190.03
EXCLUSION: NESC/PSYO 2190.03

NESC 3227.03: Principles of Human Neuropsychology.

Clinical neuropsychologists study the organization of cognitive, emotional, and social functions in the brain to understand how brain damage alters human behaviour across the lifespan. We examine how clinicians diagnose and rehabilitate persons with brain diseases and disorders. Assignments emphasize application of textbook/literature-based knowledge, critical thinking, and group presentation skills.

FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 3165.03 or NESC 2160.03, and either NESC/PSYO 2470.03 or PSYO 2770.03
CROSS-LISTING: PSYO 3227.03

NESC 3237.03: Drugs and Behaviour.

An introduction to behavioural psychopharmacology. The lectures involve basic anatomy, physiology, and chemistry of the nervous system. Behavioural effects and underlying mechanisms of various psychoactive drugs are discussed. Specific topics covered are alcohol, tobacco, amphetamines, cocaine, opiates, hallucinogens, tranquilizers, and antipsychotic drugs.

PREREQUISITE: PSYO 3165.03 or NESC 2160.03, and either NESC/PSYO 2470.03 or PSYO 2770.03
CROSS-LISTING: PSYO 3237.03

NESC 3260.03: Biological Rhythms.

Daily (circadian) clocks generate rhythms in many functions, including sleep, reproduction, and intellectual performance. This course examines the nature of these biological clocks, their neural mechanisms, and their role in regulating sleep and other aspects of physiology and in pathological conditions, including sleep disorders, jet lag, and psychiatric disorders.

FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 3165.03 or NESC 2160.03, or BIOL 3074.03 and MARI 3075.03, or BIOL 3078.03 and BIOL 3079.03, or MARI 3074.03 and MARI 3076.03, or PSYO 3160.03
CROSS-LISTING: PSYO 3260.03

NESC 3264.03: The Science of Sleep.

This course reviews the history, methods and results of the scientific study of sleep. Topics include: circadian and homeostatic regulation; and the role of sleep in performance and health, theories of the functions of sleep.

FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 3165.03 or NESC 2160.03, and either NESC/PSYO 2470.03 or PSYO 2770.03
CROSS-LISTING: PSYO 3264.03

NESC 3270.03: Developmental Neuroscience.

This course presents the fundamental principles of development in complex and simple nervous systems. Cell differentiation, pattern regulation, proliferation, migration, and circuit development are discussed. Special attention is given to later stages of development.
developmental events such as neuronal growth cones, cell death, growth factors, neuronal–glial interactions, and synapse formation.

NESC 3370.03: Neuroscience Laboratory I.
Introduction to several neurophysiological techniques used in contemporary neuroscience, employing extracellular and intracellular electrical recording and stimulation methods on nervous system preparations, both sensory and motor. Attention is directed to training students in groups of 2 to 3 and to perform state-of-the-art and sophisticated experimental practices themselves, enabled by computer-based data acquisition.

NESC 3371.03: Neuroscience Laboratory II.
Introduction to several techniques used in contemporary neuroscience. Students work under supervision in groups of 2 or 3 in regular labs that introduce neuroanatomical analyses using the following: Golgi impregnation, immunocytochemistry, dye-tracking of connections, electromicroscopy of the retina, and neurotransmitter determinations using HPLC.

NESC 3440.03: Neuroanatomy.
This is a survey of the structure and function of the human central nervous system (CNS, the brain and spinal cord). The laboratory component provides the opportunity to dissect the human brain and to study the microscopic anatomy of the CNS. This course provides the lecture and laboratory component for the graduate course ANAT 3100 Human Neuroanatomy.

NESC 3670.03: Genes, Brain and Behaviour.
The application of genetic techniques to the study of cognitive abilities, psychopathology, personality disorders, stress-related illnesses, and ethical issues in genetic research. The role of genetic factors in eating and drug abuse problems, as well as methods used to study gene–environment interactions are explored.

NESC 3770.03: Behavioural Neuroscience.
Behavioural neuroscience explores the neural and hormonal mechanisms underlying a variety of behavioural phenomena. The course focuses on neural correlates of social and emotional behaviour, motor behaviour and patterns, and behavioural toxicology processes (neurotoxins and endocrine disruptors).

NESC 3775.03: Behavioural Neuroscience Laboratory.
Students motivated to pursue a career in Neuroscience, or in a related biomedical discipline, gain direct experience studying the nervous system in relation to behaviour. Students acquire skills in animal handling, ethics, and measuring behaviour. Emphasis is placed on histological/molecular analysis of the brain including scanning microtome and mRNA levels.

NESC 3790.03: Neurolinguistics.
The course covers: (1) brain damage and language disorders; (2) aphasia; (3) localization of lesions in the human brain; (4) neuroimaging; (5) intracranial electric stimulation experiments; (6) event-related brain potential experiments; (7) PET, fNMR scan experiments; (8) neural models of language processing.

NESC 3970.03: Molecular Neuroscience.
This course examines the development, function, and pathology of the brain at the molecular level. Model systems are examined from the perspectives of ion channels, messengers, receptors, intracellular signalling cascades, transcription factors, and genes. The concepts underlying basic cellular and molecular neuroscience tools are emphasized.

NESC 4000.03: Senior Seminar.
An individually tailored reading or study course designed to allow Honours students to focus on a particular topic, or a set of related topics, that are not part of the regular program. Enrolment is contingent upon securing a faculty member to supervise the study program.

NESC 4007.03: Contemporary Issues in Neuroscience.
This is a seminar course that focuses on a significant theme or topic in the research literature in Neuroscience. Topics vary from year to year. Consult the department for the details about course content.

NESC 4050.03: Topics in Perception.
SIGNATURE REQUIRED
COORDINATOR: J. Christie
FORMAT: Seminar 2 hours
CROSS-LISTING: PSYO 4000.03

NESC 4070.03: Chemical Neurobiology.
The goal is to acquaint the student with neurotransmitters (excitatory amino acids, acetylcholine, monoamines, neuropeptides). Anatomical, biochemical, physiological, pharmacological, behavioral, and clinical aspects of individual neurotransmitter systems are discussed. Lectures are given by the instructors. Students are expected to write an examination and a review, and give a presentation.

CROSS-LISTING: Seminar 2 hours
SIGNATURE REQUIRED
COORDINATOR: J. Christie
FORMAT: Seminar 2 hours
CROSS-LISTING: PSYO 4000.03

NESC 4130.03: Topics in Human Information Processing.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours
CROSS-LISTING: PSYO 4130.03

NESC 4160.03: Topics in Behavioural Biology.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours
CROSS-LISTING: PSYO 4160.03
Neuroscience 549

NESC 4170.03: Topics in Behavioural Neuroendocrinology.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours
CROSS-LISTING: PSYO 4170.03
RESTRICTION: Restricted to NESC/PSYO Honours Students

NESC 4177.03: Theoretical Neuroscience.
An introduction to basic concepts and research questions in computational neuroscience. This includes cellular mechanisms such as spike generation and synaptic plasticity, network-level concepts such as perceptions and associative attractor networks, and system-level concepts such as memory, learning and anticipation. This course includes an introduction to MATLAB programming.
SIGNATURE REQUIRED
FORMAT: Seminar
PREREQUISITE: Intended for third- or fourth-year Neuroscience students.

NESC 4185.03: Current Advances in Synaptic Function and Plasticity.
Key recent research studies in cellular and system neurophysiology are presented and critically discussed. Emphasis is placed on plasticity, synaptic function, excitability, dendritic integration, neural networks and relevant advances in experimental methods. Newly published papers within these areas are reviewed weekly, followed by a more extensive critique of two publications.
FORMAT: Seminar 2 hours
PREREQUISITE: NESC 2570/PHYL 2570 or permission of course instructors
CROSS-LISTING: PHYL 4000.03

NESC 4230.03: Human Performance Topics.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours
CROSS-LISTING: PSYO 4230.03

NESC 4374.03: Introduction to Pharmacology I.
This introductory course is designed to acquaint students with the actions of drugs on physiological and biochemical functions in mammals including humans. Factors which affect the blood levels of drugs (absorption, distribution, metabolism, and elimination) will be considered, together with the mechanisms by which drugs act and their potential uses. The interaction of drugs with various body systems will be covered, including the central and peripheral nervous systems and the cardiovascular system. Drugs that assist or regulate host defence mechanisms will also be studied.
COORDINATOR: M.E.M. Kelly
FORMAT: Lecture 3 hours
PREREQUISITE: A previous course in physiology and biochemistry is recommended. Extra reading may be required for students without these courses.
CROSS-LISTING: PHAC 5406.03, BIOC 4804.03, and BIOL 4404.03

NESC 4376.03: Introduction to Pharmacology II.
This course is intended to cover specific aspects of drug action not covered in NESC 4374.03. The course includes: drug receptor signaling, ion channels, second messengers, G-proteins and immunopharmacology, plus specific consideration of drugs used for pain, inflammation, cancer, diabetes, and aneurism.
COORDINATOR: D. Dupre
FORMAT: Lecture 3 hours
PREREQUISITE: NESC 4374.03 (with a grade of B or better)
CROSS-LISTING: PHAC 5408.03, BIOC 4806.03, and BIOL 4407.03

NESC 4500X/Y.06: Honours Thesis.
Under a staff member’s supervision, each student conducts original research in experimental neuroscience. Students must describe their proposed research and progress. A formal written report of the completed research is required. The final grade is based on originality and skill with emphasis on the written and oral reports.
SIGNATURE REQUIRED
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
PREREQUISITE: Fourth-year Honours students, and instructor’s consent
CROSS-LISTING: PSYO 4500X/Y.06
RESTRICTION: Restricted to Honours students in their graduating year.
Ocean Sciences

See Oceanography for contact information and a list of faculty.

I. Introduction

Ocean Sciences includes study of the physics, biology, geology, chemistry, and meteorology of the marine environment. Topic areas include ocean currents, waves, tides, marine sediments, oceanic crustal structure, nutrient cycling, acoustics, ocean-atmosphere coupling, biological production, and seawater properties, among others. Students enrolled in the Ocean Sciences program will be educated in the core oceanographic sub-disciplines of physical, geological, chemical, and biological oceanography, while also being exposed to issues in marine policy, law, and management. Graduates of the Ocean Sciences program will have gained an appreciation of the interdisciplinary and collaborative approaches often required to arrive at meaningful solutions to environmental problems relating to the oceans. They will have developed strong quantitative and practical skills, as well as a breadth of knowledge across ocean science disciplines. Ocean scientists are employed in research laboratories, universities, government agencies, and private industry. Career paths include environmental prediction, environmental monitoring and assessment, marine technology, marine surveying, marine resource use and extraction, and marine conservation.

II. Degree Programs

The Department of Oceanography offers a number of degree programs in Ocean Sciences, including Major, Double Major, Concentrated Honours, Combined Honours, and Minor options. In addition to the departmental requirements detailed below, students must satisfy the degree requirements of the College of Arts and Science (outlined in the College of Arts and Science section of this calendar).

A. BSc (20 credit) Major in Ocean Sciences

Departmental Requirements

1000 level
• PHYC 1280.03/1290.03 or PHYC 1300.06
• MATH 1000.03/1010.03
• STAT 1060.03
• Any two of the following three course sequences: BIOL 1010.03/1011.03, CHEM 1011.03/1012.03, ERTH 1080.03/1090.03
OR
• One of: SCIE 1515.36, SCIE 1520.30, 1530.27
• MATH 1010.03
• PHYC 1320.03

2000 level
• OCEA 2000.06 or OCEA 2001.03/2002.03
• OCEA 2020.03/2021.03

3000 and 4000 level
• OCEA 3003.03
• A minimum of one credit each from three of the four Ocean Science Areas (three credits total). See III. Ocean Science Areas.
• One additional credit from the Ocean Science Areas. See III. Ocean Science Areas.
• OCEA 3001.03 or OCEA 4120.03 must be included in one of the preceding two requirements.
• OCEA 4001.03
• OCEA 4401.03/4402.03
• OCEA 4200.06

B. BSc (20 credit) Double Major in Ocean Sciences

Departmental Requirements

Same as for 20 credit BSc Major in Ocean Sciences.

C. BSc (20 credit) Concentrated Honours in Ocean Sciences

Departmental Requirements

1000 level
• PHYC 1280.03/1290.03 or PHYC 1300.06
• MATH 1000.03/1010.03
• STAT 1060.03
• Any two of the following three course sequences: BIOL 1010.03/1011.03, CHEM 1011.03/1012.03, ERTH 1080.03/1090.03
OR
• One of: SCIE 1515.36, SCIE 1520.30, 1530.27
• Any two of the following three course sequences: BIOL 1010.03/1011.03, CHEM 1011.03/1012.03, ERTH 1080.03/1090.03
OR
• One of: SCIE 1515.36, SCIE 1520.30, 1530.27
• SCIE 1540.27
• MATH 1010.03
• PHYC 1320.03

A “B+” average (3.7) must be attained in the following 2000-, 3000- and 4000-level courses. Additionally, a “B” (3.0) must be attained in the required 2000 courses.

2000 level
• OCEA 2000.06 or OCEA 2001.03/2002.03
• OCEA 2020.03/2021.03

3000 and 4000 level
• OCEA 3003.03
• A minimum of one credit each from three of the four Ocean Science Areas (three credits total). See III. Ocean Science Areas.
• One additional credit from the Ocean Science Areas. See III. Ocean Science Areas.
• OCEA 3001.03 or OCEA 4120.03 must be included in one of the preceding two requirements.
• OCEA 4001.03
• OCEA 4401.03/4402.03
• OCEA 4200.06

D. BSc (20 credit) Combined Honours in Ocean Sciences (A) and another subject (B)

Departmental Requirements

1000 level
• PHYC 1280.03/1290.03 or PHYC 1300.06
• MATH 1000.03/1010.03
• STAT 1060.03
• Any two of the following three course sequences: BIOL 1010.03/1011.03, CHEM 1011.03/1012.03, ERTH 1080.03/1090.03
OR
• One of: SCIE 1515.36, SCIE 1520.30, 1530.27
• Any two of the following three course sequences: BIOL 1010.03/1011.03, CHEM 1011.03/1012.03, ERTH 1080.03/1090.03
OR
• One of: SCIE 1515.36, SCIE 1520.30, 1530.27
• SCIE 1540.27
• MATH 1010.03
• PHYC 1320.03

A “B+” average (3.7) must be attained in the following 2000-, 3000- and 4000-level courses. Additionally, a “B” (3.0) must be attained in the required 2000 courses.

2000 level
• OCEA 2000.06 or OCEA 2001.03/2002.03
• OCEA 2020.03/2021.03

3000 and 4000 level
• OCEA 3003.03
• OCEA 3001.03 or OCEA 4120.03
• OCEA 4110.03, OCEA 4140.03
• One and one-half (1.5) additional credits from the Ocean Science Areas. See III. Ocean Science Areas.
• OCEA 4001.03
• OCEA 4401.03/4402.03
• OCEA 4200.06

Honours Qualifying exam (graded as Pass/Fail) based on participation in OCEA 4200.06
E. BSc (20 credit) Combined Honours in a subject (A) and Ocean Sciences (B)

Departmental Requirements

2000 level
- OCEA 2000.06 or OCEA 2001.03/2002.03
- OCEA 2020.03/2021.03

3000 and 4000 level
- OCEA 3003.03
- A minimum of one credit from each of three Ocean Science Areas (three credits total). See III. Ocean Science Areas.
- OCEA 4000.03

F. Minor in Ocean Sciences

Students in other 20 credit degree programs may choose to include a Minor in Ocean Sciences in their program. Requirements are outlined in the College of Arts and Science Minors section of this Calendar beginning on page 129.

G. Minors available to students in Ocean Sciences

Minor programs allow students to develop subject specializations in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year Major or Honours program (including co-op programs).

Students in a 20 credit BSc program in Ocean Sciences may choose to include a Minor selected from the list of approved Minors beginning on page 132 in this Calendar. Note that courses counted toward your Major or Honours program cannot be used to fulfill the requirements of a Minor program.

H. BSc (20 credit) in Environmental Science: Oceans and Global Change

See Environmental Science Program.

I. Certificate programs

In combination with a BA or BSc, there are certificates that can be obtained to emphasize areas of proficiency. Courses counted toward a Major, Honours or Minor program may also be used to fulfill the requirements of a Certificate. For a complete list of offerings refer to Certificate Programs in the College of Arts and Science section of the calendar.

III. Ocean Science Areas

NOTE: Classes marked with an asterisk* are required in that area.

A. Physical Oceanography
- OCEA 3001.03 and/or OCEA 4120.03*, OCEA 4210.03, OCEA 4220.03, OCEA 4311.03, OCEA 4411.03, OCEA 4412.03, OCEA 4505.03, OCEA 4520.03, OCEA 4541.03, OCEA 4550.03

B. Biological Oceanography
- OCEA 4140.03*, OCEA 4160.03, OCEA 4230.03, OCEA 4330.03, OCEA 4335.03, OCEA 4370.03, OCEA 4380.03

C. Chemical Oceanography
- OCEA 3002.03*, OCEA 3420.03 (NOTE: this course may fulfill a half-credit requirement in either this Ocean Science Area or the Geological Oceanography Ocean Science Area, but not both), OCEA 4150.03, OCEA 4195.03

D. Geological Oceanography
- OCEA 3004.03, OCEA 3420.03 (NOTE: this course may fulfill a half-credit requirement in either this Ocean Science Area or the Chemical Oceanography Ocean Science Area, but not both), OCEA 4110.03*, OCEA 4115.03, OCEA 4470.03, OCEA 4480.03

See Oceanography section for course descriptions.

Oceanography

Location: Life Sciences Centre
PO Box 15000
Halifax, NS B3H 4R2
Telephone: (902) 494-3557
Fax: (902) 494-3877
Email: Oceanography@Dal.ca
Website: http://www.dal.ca/oceanography

Dean
Moore, C., BA (Hons), PhD (Cambridge), Professor (Psychology)
Chairperson of Department
Lewis, M. R. (494-1435)

Graduate Studies Coordinator
Kelley, D. (494-1890)

Professors Emeriti
Bowen, A. J., MA (Cantab), PhD (Scripps), FRSC
Fournier, R. O., MSc (Wm. & Mary), PhD (URI)
Mills, E., BSc (CARL), MS, PhD (Yale), FLX

Professors
Beaumont, C., BSc (Sussex), PhD (Dalhousie), Canada Research Chair
Boudreau, B. P., BSc (UBC), MS (Texas A & M), PhD (Yale), FRSC Killam Professor and Dean of Graduate Studies
Grant, J., BSc (Dal), PhD (South Carolina)
Hay, A., BSc, MSc (Western), PhD (UBC)
Hill, P. S., AB (Dartmouth), MSc, PhD (Wash)
Kelley, D., BSc (Mt. A), PhD (Dalhousie)
Lewis, M. R., BS, MS (UMd), PhD (Dalhousie)
Metaxas, A., BSc (McGill), MSc (UBC), PhD (Dalhousie) (NSERC USA)
Ruddick, B. R., BSc (Univ), PhD (MIT)
Sheng, J., BEng (East China Tech Univ.), MSc, PhD (MUN) (LRIF Chair)
Tegart, J. T., BSc (Carlton), MSc (Yrk), PhD (McGill)
Thomas, H., MSc (Dundonald), PhD (Romk)
Thompson, K. R., BSc, MSc (Ulster), PhD (Lev) (jointly with Mathematics and Statistics), Canada Research Chair
Wallace, D. W., BSc (U of East Anglia), PhD (Dalhousie), Canada Excellence Research Chair (UBC)

Associate Professors
Fennel, K., MSc, PhD (Romk), Canada Research Chair
Gentleman, W. C., BEng (McGill), PhD (Dartmouth) (cross appointment with Engineering Mathematics)
Kienast, M., BSc (Clausthal), MSc (Karlsruhe), PhD (UBC) (CIFAR Scholar)
Ross, T., BSc (Manitoba), PhD (Victoria) (NSERC USA)

Assistant Professor
Kumar, S., MSc (Karlsruhe), PhD (UBC)

Instructor
deGelleke, L., BS (Univ of Hawaii at Manoa), MSc (Dalhousie)

Adjunct (FGS)
Arima-Sand, K., BSc, MSc (Japan), PhD (Dalhousie)
Crampton P., BSc, PhD (Dalhousie)
Difebush, C., BSc, MSc (Dalhousie), PhD (Scipps)
Frank, K. T., BSc, PhD (Sokol)
Greenberg, D. A., MMath (Waterloo), PhD (Liverpool)
Hobart, D., MS (U. Vic), PhD (Dalhousie)
The Department of Oceanography offers undergraduate training within a new Ocean Sciences program, and in Oceanography as part of a Combined Honours Degree and Double Major Degrees with the Departments of Marine Biology, Chemistry, Earth Sciences, Mathematics, Statistics, and Physics and Atmospheric Science. Honours students in these programs have an opportunity to complement their training in their chosen scientific field with a background in Oceanography, thus enhancing their career and employment opportunities. Students considering graduate study in Oceanography should consider an honours degree.

Oceanography is an inter-disciplinary science that includes studies of tides and currents, the chemistry of sea water, plants and animals that live in the sea, and ocean-bottom sediments and underlying crustal structures. Career oceanographers are employed in universities around the world, in various federal laboratories that are engaged in basic research, and applied problems which meet a national need, such as fisheries investigations, exploration for offshore mineral resources, and studies of ice in navigable waters. Other career opportunities exist in organizations dealing with marine policy and regulation, and in private companies interested in marine environmental technologies, protection or exploration.

The additional eight credits must be chosen in consultation with the two departments involved, specifically the Honours Student Advisor in Chemistry and the Undergraduate Coordinator in Oceanography before registering in the combined program. Students should also consult the handbook “Undergraduate Programs in Chemistry” for details. Some of the courses listed here are required for students seeking a Diploma in Meteorology. Details for this course of study are found in the Physics and Atmospheric Science Program section of this calendar.

A good background in basic science is a necessary prerequisite for students wishing to prepare for studies in Oceanography. There are introductory courses which survey the entire field and advanced courses in each of the major specialties -- physical, chemical, geological, biological, oceanography and atmospheric sciences. Students are encouraged to select electives from the 3000 and 4000 level courses below as appropriate to their selected Undergraduate Honours and/or Major degree.

II. Degree Programs

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar. The following Combined Honours Programs are only available to students currently in their 3rd or 4th year.

A. Combined Honours Program: Marine Biology/Oceanography

Oceanography is intended to be the second honours subject and Marine Biology is intended to be the primary honours subject. The requirements for a combined honours program in Marine Biology/Oceanography are that the students take a minimum of 11 credits beyond 1000 level in the two subjects with not more than nine credits in each. Core Biology requirements for the current Marine Biology Program (e.g. 1000-1999 level courses in the Calendar) are unchanged. Other courses currently required by the Marine Biology Program in Chemistry, Mathematics, and Statistics are unchanged; however, the Oceanography Department strongly recommends completion of higher level mathematics and statistics courses.

To fulfill the requirements for the combined program, students will take two credits from required courses listed below. In addition, students will need to choose a minimum of two elective credits either from the required courses or elective listed below to complete the program. Finally, students working with faculty in Oceanography or Marine Biology on their honours research would be required to enrol in BIOL 4900.06 as well as BIOL 4880.00.

Required Courses

- OCEA 2000/01: The Blue Planet
- OCEA 2003.03: Climate Change
- OCEA 3001.03: Introduction to Physical Oceanography
- OCEA 3002.03: Introduction to Chemical Oceanography
- OCEA 3003.03: Introduction to Biological Oceanography
- OCEA 3004.03: The Last Billion Years
- OCEA 4140.03: Biological Oceanography
- BIOL 4000.06: Honours Thesis Project
- BIOL 4880.00: Honours Qualifying Examination

Electives

- OCEA 3420.03: Gaschemistry of Aquatic Environments
- OCEA 4000.03: Oceans and Global Change
- OCEA 4103.03: Fisheries Oceanography
- OCEA 4230.03: Biology of Phytoplankton
- OCEA 4380.03: Benthic Ecology
- OCEA 4341.03: History of Marine Sciences
- OCEA 4353.03: Environmental Impacts in Marine Ecosystems
- OCEA 4710.03: Deep Sea Biology
- OCEA 4380.03: Marine Modelling

B. Combined Honours Program: Chemistry/Oceanography

Oceanography is designated as the second subject of the Combined Honours Degree. At least 11.5 credits beyond the 1000 level are required in Chemistry and Oceanography/Related Sciences. CHEM 2100.03, 2200.03, 2301.03, 2302.03, 2401.03, and 2402.03 must be part of this combined honours program and must be passed with a grade of C or better.

Courses for Combined Honours with Oceanography degree.

Required marked with an asterisk (*).  

First Year

- CHEM 1401.03 + 1402.03: Concepts in Chemistry I & II or CHEM 1101.03 + 1102.03: Engineering Chemistry I & II
- MATH 1000.03 + 1001.03: Differential and Integral Calculus I & II
- PHYS 1500.03 or 1500.03: Intro or Physics I and Intro to Astrophysics
- *Writing Course - Language or Humanities
- *Social Science

2000 level courses (chemistry)

- CHEM 2100.03 + 2202.03: Intro. Inorganic + Intro. Analytical
- *CHEM 2101.03 + 2204.03: Thermodynamics + Kinetics and Dynamics
- CHEM 2401.03 +2402.03: Organic Chemistry

3000 and 4000 level courses (chemistry)

- CHEM 3200.01: Spectroscopy & Separations
- CHEM 4202.03: Chromatronics
- *Three courses from CHEM 4010, 4100, 4200
- *CHEM 4901: Honours Research Project

Oceanography and related courses

- OCEA 3001.03: Climate Change
- ERTH 2400.03: Marine Geoscience
- OCEA 3002.03: Introduction to Physical Oceanography
- *OCEA 3003.02: Introduction to Chemical Oceanography

Courses for Combined Honours with Oceanography degree.

552 Oceanography
C. Combined Honours Program: Earth Sciences/ Oceanography
Oceanography is designated as the second subject of the Combined Honours Degree. At a minimum, students must choose 11 credits beyond 1000-level in the two subjects with not more than nine nor fewer than five in either; at a maximum, students will choose 13 credits beyond 1000-level in two subjects with not more than nine nor fewer than four in either.

Four Required Oceanography Credits from:
- OCEA 2000.06: The Blue Planet
- OCEA 2000.08: Climate Change
- OCEA 3001.03: Introduction to Physical Oceanography
- OCEA 3002.03: Introduction to Chemical Oceanography
- OCEA 3003.04: The Last Billion Years
- OCEA 3005.03: Geochemistry of the Aquatic Environments
- OCEA 4110.03: Geophysical Oceanography
- OCEA 4310.03: History of Marine Sciences
- OCEA 4470.03: Introduction to Geologic Processes and Sedimentology
- OCEA 4200.06: Honors Thesis *

*Students registered in this course must take instruction in thesis writing along with students registered in ERTH 4208.06

These Oceanography credits must be combined with core Earth Sciences courses, which constitute five credits:
- ERTH 2000.03: Field School
- ERTH 2001.03: Earth Materials Science I
- ERTH 2002.03: Earth Materials Science II
- ERTH 2003.03: Principles of Geophysics I
- ERTH 2110.03: Field Methods
- ERTH 2230.03: Sedimentary and Sedimentary Rocks
- ERTH 2235.03: Introduction to Palaeontology
- ERTH 3000.03: Computer Camp
- ERTH 3140.03: Structural Geology
- ERTH 3303.03: Stratigraphy
- ERTH 4000.03: Advanced Field School (NB: 0 credit hours)
- ERTH 4350.03: Tectonics

Additional credits ERTH credits will be chosen from the following list so that the total of OCEA and ERTH courses is between 11 and 13 credits.
- ERTH 2400.03: Marine Geoscience (recommended)
- ERTH 3010.03: Isotope Geology
- ERTH 3020.03: Isotope Geology

D. Combined Honours Program: Mathematics/ Oceanography
Mathematics is intended to be the primary honours subject and Oceanography the second subject. The requirements for a combined honours program in Mathematics/Oceanography are that the students take a minimum of 11 and a maximum of 14 credits beyond the 1000-level in the two subjects with not more than nine nor fewer than five in each. Oceanography courses must be chosen in consultation with the Honours Project advisors.

Recommended Mathematics Courses:
- MAT 2001.03/2002.03: Intermediate Calculus
- MAT 2130.03/2135.03: Linear Algebra
- MAT 2505.05: Analysis
- One of:
  - MAT 3010.06: Abstract Algebra
  - MAT 3100.06: Analysis
- One full credit in MATH at 4000 level.
- OCEA 2000.06: The Blue Planet
- OCEA 3001.03: Introduction to Physical Oceanography
- Plus MAT 4990 or OCEA 4200 (Honours Research Project)

Relevant pure courses (please review prerequisites):
- BIOC 1000, 3060, 4988
- BIOC 1000, 1090, 1090, 1490, 2410

E. Combined Honours Programs: Physics/ Oceanography
Oceanography is designated as the second subject of the Combined Honours Degree. At least 11 credits beyond the 1000-level are required in Physics and Oceanography. The additional one credit must be chosen in consultation with the two departments involved, specifically the Honours Student Advisor in Physics and the Undergraduate Coordinator in Oceanography, before registering in the combined program.

Required Physics courses are:
- PHYS 2140.05: Physics Tools I
- PHYS 2150.05: Physics Tools II
- PHYS 2215.05: Modern Physics
- PHYS 2510.05: Electricity and Magnetics
3000 level:
- PHYS 3000.03: 3010.03: Experimental Physics
- PHYS 3210.03: Thermodynamics
- PHYS 3100.03: Statistical Mechanics
- PHYS 3150.03: Advanced Classical Mechanics
- PHYS 3900.03: Optics and Photonics

4000 level:
- PHYS 4000.03: 4850.03: two Honours Projects
- PHYS 4000.03: Math Methods in Physics
- PHYS 4100.03: Electrodynamics.

Other required courses as detailed by pre-requisites for the different physics courses offered:
- CHEM 1011.03: Concepts in Chemistry I
- MATH 1000.03: Differential Calculus I
- MATH 2000.03: Intermediate Calculus I
- MATH 2001.03: Linear Algebra and Matrix Theory I
- MATH 2002.03: Linear Algebra and Matrix Theory II
- MATH 4000.03: Introduction to Numerical Computing
- MATH 3100.03: Differential Equations I

A full-credit course in computer programming (e.g. PHYS 2050: Computer Simulations in Science) is recommended to be taken before the end of the second year.

- OCEA 1000X/Y.06: Conversations with Ocean Environments (cross-listed as ENGM4680)

Required Statistics/Mathematics Courses
- MATH 2001.03: Intermediate Calculus I
- MATH 2002.03: Intermediate Calculus II
- MATH 2100.03: Matrix Theory and Linear Algebra I
- MATH 2101.03: Matrix Theory and Linear Algebra II
- STAT 2000.03: Exploratory Data Analysis
- STAT 2010.03: Introduction to Probability and Statistics
- STAT 2040.03: Statistical Methods for Data Analysis and Inference
- STAT 3140.03: Regression and Analysis of Variance
- STAT 3160.03: Probability
- STAT 3400.03: Intermediate Statistical Theory

- OCEA courses.

F. Combined Honours Program: Statistics/Oceanography

- OCEA 3000.06: The Blue Planet
- OCEA 4000.03: Fluid Dynamics 1

Elective Statistics/Mathematics courses taken from the following list so that the total number of OCEA credits is at least 40:

- STAT 3345.03: Environmental Risk Assessment
- STAT 3340.03: Regression and Analysis of Variance
- STAT 2080.03: Statistical Methods for Data Analysis and Inference
- STAT 2060.03: Introduction to Probability and Statistics
- STAT 2050.03: Exploratory Data Analysis
- STAT 2040.03: Statistical Methods for Data Analysis and Inference
- STAT 3140.03: Regression and Analysis of Variance
- STAT 3160.03: Probability
- STAT 3400.03: Intermediate Statistical Theory

- Students are responsible for fulfilling all pre-requisite courses or obtaining the permission of the instructor to enroll. Students in the program must consult regularly with the Undergraduate Coordinator in each Department.


Students should follow the requirements for a Combined Honours program (see sub-section B – G, above), but replace the Honours Thesis with other MARI/OCEA, CHEM/OCEA, ERTH/OCEA, MATH/OCEA, PHYC/OCEA, STAT/OCEA courses.

III. Course Descriptions

OCEA 1000XY.06: Conversations with Ocean Scientists.

Students engage with working ocean scientists about their research, its relevance, and how to communicate science to different audiences. In addition to regular writing exercises that include journaling, blogging, and lab reporting, students compose a research paper and follow it through the process of submission and peer-review for an in-class journal.
This course provides an overview of oceanography. It is designed to develop an understanding of the ocean and the science of oceanography. Students learn about the geological, physical, chemical, and biological processes at work in the ocean. Consideration is also given to human impacts.

NOTE: Credit can only be given for this course if the previous requirements are completed in consecutive terms. The exception is for Marine Biology Co-op students, who can enroll in OCEA 2001.X.03 and OCEA 2002.Y.03 in non-consecutive terms if their program demands conflict with a full-year enrollment.

FORMAT: Lecture 3 hours
PREREQUISITE: OCEA 2000.X.03 (or OCEA 2001.X.03/2002.Y.03); or permission of instructor
EXCLUSION: OCEA 2850.06, OCEA 2851.03/2852.03

OCEA 2001.03: The Blue Planet I.

This course provides a general survey of oceanography. It is designed to develop an understanding of the ocean and the science of oceanography. Students learn about the geological, physical, chemical and biological processes at work in the ocean. Consideration is also given to human impacts.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms. The exception is for Marine Biology Co-op students, who can enroll in OCEA 2001.X.03 and OCEA 2002.Y.03 in non-consecutive terms if their program demands conflict with a full-year enrollment.

EXCLUSION: OCEA 2000.06, OCEA 2800.06, OCEA 2811.03/2852.03

OCEA 2002.03: The Blue Planet II.

This course provides a general survey of oceanography. It is designed to develop an understanding of the ocean and the science of oceanography. Students learn about the geological, physical, chemical and biological processes at work in the ocean. Consideration is also given to human impacts.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms. The exception is for Marine Biology Co-op students, who can enroll in OCEA 2001.X.03 and OCEA 2002.Y.03 in non-consecutive terms if their program demands conflict with a full-year enrollment.

The Blue Planet I and II courses provide a broad overview of oceanography.

OCEA 2003.03: Tools and Concepts in Ocean Sciences I.

Students gain applications-based insights into concepts introduced in OCEA 2000.06 through hands-on experience with data acquisition and analysis, instrumentation, and wet-lab experiments. Quantitative skills are developed and applied to ocean problems. Topics include determining the age of the earth, seawater chemistry, acidification, water mass variation, waves and tides.

FORMAT: Lab 3 hours
PREREQUISITE: MATH 1000.X.03; STAT 1060.03; PHYC 1280/1290.03 (or PHYC 1000.06), at least 3 credits from GEOG 1010.01 or (Biol 1020.03, 1021.03), or CHEM 1011.03/1012.03, ERTH 1080.03/1090.03; or permission of instructor
CO-REQUISITE: OCEA 2000.06 (or OCEA 2001.03/2002.03); or permission of instructor

OCEA 2004.03: Tools and Concepts in Ocean Sciences II.

Following from OCEA 2000.06, students further develop quantitative skills applied to topics that include ocean optics, ocean productivity and biomass, solitation, remote sensing, and biophysical modelling. Students build their own ocean sensors that are used to measure various states and rates during labs throughout the term.

FORMAT: Lab 3 hours
PREREQUISITE: OCEA 2000.06
CO-REQUISITE: OCEA 2000.06 (or OCEA 2001.03/2002.03); or permission of instructor

OCEA 2000.03: Climate Change.

See course description for PHYC 2800.03 in the Physics and Atmospheric Science section of this calendar.

CROSS-LISTING: PHYC 2800.03, GEOG 2800.03
EXCLUSION: ECON 2800.06, PHYC 2800.06

OCEA 3001.03: Introduction to Physical Oceanography.

This course introduces Ocean Physics, focusing on issues of interest to undergraduates in ocean-related disciplines. The approach is to blend facts together with ideas, often starting with thought experiments and proceeding to simple mathematical models.
OCEA 4115.03: Micropaleontology and Global Change.
See course description for ERTH 4902 in the Earth Sciences section of this calendar.
CROSS-LISTING: ERTH 4902.03

OCEA 4120.03: Physical Oceanography.
This course introduces undergraduate students to the physical properties and dynamics of the oceans. Topics range from global circulation down to the small scales of turbulence. Fast and theory are blended throughout. Quantitative problem solving is emphasized in assignments.
FORMAT: Lecture 3 hours
PREREQUISITE: MATH 1000.03, MATH 1010.03, classic calculus or equivalent, and permission of the instructor.
CROSS-LISTING: OCEA 5120.03
RESTRICTION: Third- and fourth-year students only.

OCEA 4130.03: Chemical Oceanography.
This course covers the major and minor constituents of sea water, the controls on its chemical composition, nutrient cycling, gas exchange and the influence of the ocean on atmospheric chemistry. Other topics include chemical tracers, and radiochemical dating methods, stable isotopes studies, chemical speciation and chemical models of sea water.
FORMAT: Lecture 3 hours, some labs
PREREQUISITE: OCEA 2000; OCEA 3002 or instructor's consent.
CROSS-LISTING: OCEA 5130.03

OCEA 4140.03: Biological Oceanography.
The goal is to describe how physical, chemical and biological processes interact to determine the oceans' composition, biogeochemical activities, and trophic structure of marine communities. Outstanding problems currently facing biological oceanographers and earth systems scientists are discussed, as are current attempts and methodologies to address them.
NOTE: Biological oceanography is a quantitative science and extensive problem solving is required. Students should be competent in mathematics through calculus. Permission of instructor is required.
PREREQUISITE: OCEA 2000.06 (or OCEA 2001.03/2002.03); OCEA 2020.03; OCEA 2021.03; or permission of instructor.
CROSS-LISTING: OCEA 5140.03, BIOL 4661.03, 5661.03, MARI 4661.03

OCEA 4160.03: Fisheries Oceanography.
Oceanographic influences on ecology of marine fish on population dynamics, distribution, abundance, reproduction, life history, feeding, growth, metabolism, mortality, and recruitment. Emphasis on contemporary hypotheses and some on management. Primary-practical-style research paper required. Competence with fundamental population dynamics, ecology, physical oceanography, mathematics, and statistical analysis expected.
FORMAT: Lecture 3 hours, some practices/tutorials
PREREQUISITE: OCEA 2000.06 or 2001.03 or 2002.03; BIOL 2060.03 and/or 3067.03 or equivalent. MATH/STAT 1060.03 and/or 2080.03 or equivalent or instructor's consent.
CROSS-LISTING: BIOL 4369.03, MARI 4369.03, OCEA 5160.03

OCEA 4200X/YY.06: Honours Research.
The nature is required for students enrolled in the Combined Honours in Ocean Sciences, and certain streams of the Combined Honours in Oceanography program. It consists of a research project under the supervision of a faculty member, including an original component in oceanography. A written thesis is submitted to the Department.
NOTE: Credit can only be given for one of the X and Y. It can be completed in consecutive terms and partial credit cannot be given for a single term.
PREREQUISITE: Permission of Honours Coordinator.

OCEA 4210.03: Time Series Analysis in Oceanography and Meteorology.
This course describes the application of advanced time series analysis in oceanography and meteorology. Time and frequency domain approaches are covered. Students will develop their own computer programs to analyze real observations. Specific topics include stationarity, auto and cross-covariance functions, power and cross-spectra, and state space models.
FORMAT: Lecture 3 hours
PREREQUISITE: Instructor's consent
CROSS-LISTING: STAT 4390.03/5390.03, OCEA 5210.03

OCEA 4220.03: Numerical Modelling of Atmospheres and Oceans.
This course discusses numerical modelling techniques for simulating atmospheric and oceanic circulations. Material includes: review of governing equations, finite difference, finite element, and spectral methods; Eulerian, semi-implicit and semi-Lagrangian time integration techniques; accuracy and stability studies; data assimilation and ensemble prediction methods; and boundary treatment for ocean models.
FORMAT: Lecture 3 hours
PREREQUISITE: 1000-level calculus course and instructor's consent.
CROSS-LISTING: OCEA 5220.03

OCEA 4222.03: Estuary, Coast and Shelf Dynamics.
This course discusses the physical processes that operate on continental shelves to create long waves, tides, tidal mixing, thermohaline circulation, wind forcing, upwelling, etc. Both observations and models for these processes are discussed.
FORMAT: Lecture 3 hours
PREREQUISITE: OCEA 4120.03
CROSS-LISTING: OCEA 5222.03

OCEA 4230.03: Biology of Phytoplankton.
This course presents the phytoplankton in the context of their evolutionary history and ecological diversity, with an emphasis on their adaptations and acclimation to different environments and their role in food webs and in biogeochemical cycling.
FORMAT: Lecture 3 hours
PREREQUISITE: Instructor's consent.
CROSS-LISTING: BIOL 4662.03, OCEA 5230.03, MARI 4662.03

OCEA 4290.03: Advanced Chemical Oceanography.
This course presents research topics in chemical oceanography, taught as 3-4 self-contained modules. Examples include the oceanic CO2 system and its relation to climate change; chemical reactions in sediments; photochemistry in the upper ocean, and inferring the chemistry of ancient oceans through the isotope record in sediments.
PREREQUISITE: Students will have completed all required 3000 level courses in Oceanography, OCEA 4130, and have the consent of the instructor of this course.
CROSS-LISTING: OCEA 5290.03

OCEA 4311.03: Fluid Dynamics I.
An introduction to the theory of fluid dynamics, with some emphasis on geophysical aspects. Topics include tensor mathematics, flow kinematics, equations of motion, viscosity, potential flow, convection and turbulence, and basic aerodynamics. Occasional reference will be made to current research topics, especially those in Physical Oceanography.
FORMAT: Lecture 3 hours
PREREQUISITE: Open to first-year graduate students in physical oceanography, but graduate students or senior undergraduates in Mathematics or Physics are invited to take it (subject to instructor approval).
CROSS-LISTING: PHYC 4311.03, PHYC 5311.03, OCEA 5311.03

OCEA 4330.03: Benthic Ecology.
A graduate/fourth year undergraduate course on major problems of benthic ecology, such as food supply to benthic animals, and geomorphological processes in sediments. Course consists of two lecture per week and one journal paper discussion seminar. The last three weeks of the course are devoted to a class research project.
FORMAT: Lecture 3 hours
PREREQUISITE: Instructor's consent.
CROSS-LISTING: BIOL 4666.03, OCEA 5350.03, MARI 4666.03

OCEA 4331.03: History of Marine Sciences.
This course describes the development of the marine sciences from biological, chemical, physical and geological knowledge going back to the 17th century or earlier. It includes the important voyages of exploration, the development of
 marine biology, ocean circulation and plate tectonics, also the importance of
technological changes upon marine sciences.

FORMAL: Lecture 3 hours

PREREQUISITE: Instructor's consent

CROSS-LISTING: BIOE 4464.03, OCEA 5531.05, SICE 4481.03, HIST 3073.03, HIST 3331.03, MARI 4464.03

OCEA 4353.03: Environmental Impacts in Marine Ecosystems.

Course is directed to various activities in marine environments, with focus on
ecosystem level influences: dispersion, elemental fluxes, benthic impacts, food
webs, biodiversity. Simulation modelling of ecosystems in undertake using
SimaOOP software. Classes include lectures, modelling examples, and
discussion of research papers. Course requirements consist of problem sets and
modelling project.

FORMAL: Lecture

CROSS-LISTING: OCEA 5353.03, BIOE 4353.03, MARI 4353.03

CO-REQUISITE: BIOE 2060.03, MATH 1000.03, STAT 1060, or permission of
the instructor.

OCEA 4370.03: Deep Sea Biology.

We focus on the biology of organisms inhabiting the deep sea: physiological
adaptations to the physicochemical and geological environment: spatial and
temporal distributions of biological assemblages; and regulatory factors of these
assemblages, such as currents, food availability, reproduction and recruitment.
Also, we delve into unique habitats, such as hydrothermal vents.

PREREQUISITE: BIOE 2060.03 and OCEA 2000.06

CROSS-LISTING: BIOE 4370.03, MARI 4370.03, OCEA 5370.03

OCEA 4380.03: Marine Modelling.

This course provides a survey of modelling techniques applied to physical,
biological and biogeochemical problems in oceanography. Lecture material covers
the philosophy of modelling, dimensional analysis, parameterization of various
processes, numerical approaches to solving differential equations, etc. Students
are given the opportunity to study topics of particular interest to them.

FORMAL: Lecture 3 hours

PREREQUISITE: MATH 1000.03, MATH 1010.03, OCEA 2020.03; OCEA
2021.03, or permission of instructor

CROSS-LISTING: OCEA 5380.03

OCEA 4401.03: Marine Management I.

This course exposes students with a marine science background to the increasing
need for marine scientists and ocean managers and policy makers to work
collaboratively to address the interdisciplinary nature of the problems confronting
the world’s oceans. This course is restricted to 4th year students with a marine
science background.

FORMAL: Lecture

PREREQUISITE: OCEA 2000.06 (or OCEA 2001.03/2002.03)

RESTRICTION: Restricted to 4th year students

OCEA 4402.03: Marine Management II.

Students focus on the linkages between ocean governance and ocean science to
understand the role of marine science in informing and influencing decisions
affecting coastal and marine space and resources at multiple geographic and
jurisdictional scales. This course is restricted to 4th year students with a marine
science background.

PREREQUISITE: OCEA 2000.06 (or OCEA 1002.03/2002.03)

OCEA 4411.03: Atmospheric Dynamics I.

See course description for PHYC 4411.03 in the Physics and Atmospheric Science
section of this calendar.

PREREQUISITE: PHYC 2140.03 and MATH 3101.03, or instructor's consent

CROSS-LISTING: OCEA 5411.03, PHYC 4411.03/5411.03

OCEA 4412.03: Atmospheric Dynamics II.

See course description for PHYC 4412.03 in the Physics and Atmospheric Science
section of this calendar.

PREREQUISITE: OCEA 4411.03/5411.03 or PHYC 4411.03/5411.03, or
instructor's consent

CROSS-LISTING: OCEA 5412.03, PHYC 4412.03/PHYC 5412.03

OCEA 4470.03: Introduction to Seismic Imaging.

See course description for ERTH 4470.03 in the Earth Sciences section of this
calendar.

PREREQUISITE: ERTH 3270.03, or instructor's consent

CROSS-LISTING: OCEA 5470.03, ERTH 4470.03/5470.03

OCEA 4480.03: Advanced Seismic Imaging.

See course description for ERTH 4480.03 in the Earth Sciences section of this
calendar.

PREREQUISITE: ERTH 4470.03, or instructor's consent

CROSS-LISTING: ERTH 4480.03, ERTH 5480.03

OCEA 4505.03: Atmospheric Physics.

See course description for PHYC 4505.03 in the Physics & Atmospheric Science
section of this calendar.

OCEA 4520.03: Introduction to Atmospheric Science.

See course description for PHYC 4520.03 in the Physics and Atmospheric Science
section of this calendar.

PREREQUISITE: PHYC 2140.03, or instructor's consent

CROSS-LISTING: OCEA 5520.03, PHYC 4520.03/5520.03

OCEA 4541.03: Synoptic Meteorology I.

See course description for PHYC 4541.03 in the Physics and Atmospheric Science
section of this calendar.

PREREQUISITE: At least one third-year Physics course

CROSS-LISTING: OCEA 5541.03, PHYC 4541.03/5541.03

CO-REQUISITE: OCEA 4220.03

OCEA 4550.03: Synoptic Meteorology II.

See course description for PHYC 4550.03 in the Physics and Atmospheric Science
section of this calendar.

PREREQUISITE: OCEA 4541.03, or PHYC 4540

CROSS-LISTING: OCEA 5550.03, PHYC 4550.03/5550.03

OCEA 4595.03: Atmospheric Chemistry.

See course description for PHYC 4595.03 in the Physics and Atmospheric Science
section of this calendar.

PREREQUISITE: PHYC 2140.03 and a first-year chemistry course

CROSS-LISTING: OCEA 5595.03, PHYC 4595.03, PHYC 5595.03, CHEM
4595.03

OCEA 4596.03: Economic Impacts in Marine

See course description for PHYC 4596.03 in the Physics & Atmospheric Science
section of this calendar.
Physics and Atmospheric Science

I. Introduction

Physics is the study of the fundamental properties of energy and matter. It attempts to describe and explain the great diversity of nature with the fewest and simplest hypotheses, and to show the underlying similarities of seemingly diverse phenomena. It requires imagination and is its success is judged by whether or not nature confirms its predictions when tested by experiment. An understanding of phenomena. It requires imagination and its success is judged by whether or not nature confirms its predictions when tested by experiment. An understanding of
A BSc with Honours in Physics

All students who intend to take a BSc with Honours in Physics are encouraged to discuss their program with staff members of the department, and should consult with the Undergraduate Advisor by the beginning of the second year.

Departmental Requirements

A Concentrated Honour Program in Physics will normally include the following courses:

2000 level
• PHYS 2140.03/2150.03
• PHYS 2515.03/2510.03

3000 level
• PHYS 3010.03/3015.03
• PHYS 3660.03/3390.03
• PHYC 3320.03/3325.03

4000 level
• PHYS 4000.03/4005.03
• PHYS 4191.03
• PHYC 4160.03/4100.03

Courses from other departments
• CHEM 1011.03/1012.03
• MA TH 2001.03/2002.03
• MA TH 2030.03 and (MATH 2120.03 or MATH 2135.03 or MA TH 2300.03 or MATH 2400.03)
• MA TH 3120.03
• One or more of PHYS 3070.03, PHYS 3210.03, or PHYS 4250.03
• Two other physics half credits at the 3000 or 4000 level, other than PHYS 3146.03, PHYC 3170.03, PHYC 3310.03, PHYS 4540.03, PHYS 4550.03

A BSc (20 credit) Major in Physics

A BSc (20 credit) Major in Physics will normally include the following courses:

1000 level
• PHYS 1190.03/1290.03 or 1300X/Y.06 or SCIE 1501X/Y.27 or 1510X/Y.33

2000 level
• PHYS 2140.03/2150.03
• PHYS 2515.03/2510.03

3000 level
• PHYS 3010.03/3015.03
• PHYS 3660.03/3390.03
• PHYC 3320.03/3325.03

4000 level
• Eight physics half credits at the 3000 level or above; which must include one or more of PHYS 3070.03, PHYS 3210.03, or PHYS 4250.03

Courses from other departments
• CHEM 1011.03/1012.03
• MA TH 2001.03/2002.03
• CHEM 1011.03/1012.03
D. BSc (15 credit) with Minor in Physics

3000 level
- PHYC 1190.03/1290.03 or 1300X.Y.06 or SCE 1500X.Y.27 or 1510X.Y.33

2000 level
- PHYC 2140.03/2150.03
- PHYC 2180.03/2190.03

3000 level
- four physics half credits at the 3000 level or above, which must include one or more of PHYC 3003.03, PHYC 3250.03, or PHYC 4250.03

Courses from other departments
- MATH 1000.05/1010.05
- MATH 2001.03/2002.03
- CHEM 1011.05/1012.05

The BSc (15 credit) can be combined with a Diploma in Engineering (see also III below). Completion of the BSc (15 credit) with appropriate physics courses can lead to admission into the Diploma in Meteorology Program (see IV).

E. Co-op Education in Physics

Co-operative Education in Science (Science Co-op) is a program where academic study is combined with paid career related work experience. Students incorporate three work terms in their academic study terms and graduate with a Bachelor of Science Co-op. Science Co-op enables students to apply their knowledge directly while providing them with work experience that assists in making educated career choices. Students apply to join Science Co-op before their second year of study. If accepted into the Science Co-op program, students are required to register for and attend the Science Co-op Seminar Series (SCIE 2800.00) in the fall term of the year they join.

The scheduling of Science Co-op work terms must be taken into account in planning course selection. Consult with the Physics Co-op Academic Advisor for your work term sequence.

See the “Co-operative Education in Science” section of this calendar, or http://www.sciencecoop.dal.ca, for information on Science Co-op such as Science Co-op requirements, eligibility, how to apply, deadlines and other related information.

For further information on the Physics Co-op program, please see http://www.physics.dal.ca and follow the links to the Science Co-op website.

Co-op Program Advisor in Physics:
D. Labrie (494-2322) daniel.labrie@dal.ca

F. Honours Co-op in Physics

Departmental Requirements
Same as for the regular honours in Physics as above with the addition of the following:
- Three or four supervised work terms: PHYC 8991.00, 8992.00, 8993.00, 8994.00
- Co-op Seminar: SCE 2800.00

This is required and is a prerequisite to the first work term.

Continuous standing of at least B

It is strongly recommended that students take a full credit in scientific computer programming in their second year.

Please consult the Department’s website (http://www.physics.dal.ca) for complete program listings.

G. Minor in Physics

Students in other 20 credit degree programs may choose to include a Minor in Physics in their programs. Requirements are outlined in the College of Arts and Science Minors section of this Calendar beginning on page 120.

III. Interdisciplinary Opportunities

In addition to combined honours, opportunities exist to combine other degrees in physics with the many programs Dalhousie offers. Below are listed interdisciplinary opportunities which may be of particular interest. Please contact the Undergraduate Advisor for details.

A. Physics and Engineering Concurrent Programs

If you wish to enter one of these concurrent programs, you should register for the standard first year Engineering program and consult the Undergraduate Advisor in Physics in order to plan your course selection. Additional details, can be found in the Degree Requirements section.

The following Programs can be taken concurrently:
1. BSc/DepEng: Students can complete the requirements for the BSc (15 credit) and the DepEng in as little as three years.
2. BSc/BEng: Students can complete the BSc (15 credit) and the BEng degrees in as little as five years.
3. A BSc (Honours Physics)/BEng combination is also possible (see http://www.physics.dal.ca for more information).

B. Geophysics

For those interested in Geophysics, it is recommended that they take the courses required for a Combined Honours in Physics and Earth Sciences, or for Honours Physics, and choose as their electives a selection of the following courses: ERTH 2270.03, 3270.01, 4470.03, 4480.03.

C. Minors and Other Programs

Minor programs allow students to develop subject specialities in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year major or concentrated honours program (including co-op programs).

Students in a 20 credit BSc program in Physics may choose to include a Minor selected from the list of approved Minors beginning on page 132 in this Calendar. Note that courses counted toward a Major or Honours program cannot be used to fulfill the requirements of a Minor program.

D. Diplomas, Certificates, and Language Proficiency Certificates

In combination with a BA or BSc there are certificates or diplomas that can be obtained to emphasize areas of proficiency. Courses counted toward a Major, Honours or Minor program may also be used to fulfill the requirements of a Certificate. For a complete list and details refer to the College of Arts and Science Degree Requirements starting on page 129 of the calendar.

The following certificates may be of particular interest to students in a BSc program in Physics.

Certificate in Information Technology (IT) - Physics

Students who complete a (20 credit) Major or Concentrated Honours program in Physics will receive an IT certificate if they have taken one of PHYC 3050.03, PHYC 3250.03, or PHYC 4250.03. Please contact the Physics undergraduate advisor prior to graduation if you qualify for the IT certificate.

Certificate in Materials Science

The Department of Physics and Atmospheric Science is a participant in a certificate program offered through the Faculty of Science - a Certificate in Materials Science. A Certificate can be completed by a student in a BSc Program, in addition to the student’s regular program requirement. Completion of such a Certificate would be noted at Convocation, and shown on the student’s transcript.

The purpose of a “Certificate in Materials Science” is to show that the graduate has appropriate training in the breadth and depth of materials science, in addition to their BSc program. It is particularly suited for students in Chemistry, Earth Sciences and Physics programs at Dalhousie University.

Students should enrol in the “Certificate in Materials Science” by contacting the Certificate Coordinator, Dr. Mary Anne White (mawan@dal.ca). Students can enrol when in their second, third and fourth year of the BSc Program, but early enrolment is advised.
IV. Diploma in Meteorology

A. BSc or BA (20 credit) Major in Physics combined with a Diploma in Meteorology

This is an integrated Physics/Meteorology program. The student follows the regular 20 Credit BSc in Physics. The minimum requirements are:

- PHYC 1000X/Y.06
- PHYC 1190.03/1290.03
- PHYC 1280.03
- PHYC 1310.03/1320.03

Hands-on labs. Students are encouraged to ensure that their program meets the requirements for the 15 Credit BSE, by the end of Year 3.

B. Diploma in Meteorology

For admission into this program, a general 15 Credit BSc degree in Physics, Mathematics, or Chemistry, with appropriate Physics courses, is required. A strong background in Physics and Mathematics is necessary, and courses taken should cover Vector Calculus and differential equations. To obtain the Diploma, the ten half-credit Meteorology courses listed above are required. More information on the Diploma in Meteorology program is available at: http://www.dal.ca/Diploma_in_Meteorology/

C. Atmospheric Science

After completion of the Diploma program, students are eligible to be considered for admission to a graduate program in Atmospheric Science at Dalhousie.

V. Course Descriptions

NOTE: Not all courses are offered every year. Please consult the current timetable for this year’s offerings.

PHYC 0010.00: University Prep Physics.

This course can be used as a prerequisite for PHYC 1190.03 and PHYC 1280.03. The course will develop problem-solving techniques in preparation for topics to be covered in PHYC 1190.03 and PHYC 1280.03. This course is offered by the College of Continuing Education. Students may register and pay for this course at the College of Continuing Education located at 1220 LeMarchant Street, 2nd Floor or by calling (902) 494-2375. This course is available in the summer and in the fall term. The College of continuing Education at: http://collegeofcontinuinged.dal.ca

EXCLUSION: Credit will be given for only one of 1190.03, 1290.03, or 1310.03

PHYC 1290.03: Introduction to Physics.

This course concentrates on oscillations and waves, optics, electricity and magnetism. Primarily for students entering Physical Science of Continuing Engineering. This course is required for all Engineering programs. Students entering this course must be familiar with calculus, graphs, and trigonometry, and should be taking calculus (MA TH 1000.03/1010.03 or MA TH 1280.03/1290.03) concurrently.

Ideas are introduced through in-class demonstrations enabling students to relate physical theory to events in the real world. Students explore many concepts via hands-on labs.

FORMAT: Lecture 3 hours, lab 3 hours (number of labs = 7)

PREREQUISITE: High School Physics equivalent to the Nova Scotia Grade 12 level. Students not having a physics credit equivalent to Nova Scotia Grade 12 Physics are strongly advised to take PHYC 0010.00 available in the summer and in the fall term. The College of continuing Education at: http://collegeofcontinuinged.dal.ca

EXCLUSION: Credit will be given for only one of PHYC 1000X/Y.06, 1190.03, 1290.03, or 1310.03

PHYC 1300X/Y.06: Physics in and Around You.

An introduction to physics for students in Biology, Psychology, Arts and Environmental Sciences, and for students preparing for MC-AL and Medicine, Dentistry and Applied Health Sciences. It is accepted as a prerequisite to advanced courses in physics when combined with MA TH 1000.03 and 1010.03. Basic concepts in physics are applied, where possible, to realistic biological models, e.g. forces and torques are related to muscles and joints, electricity to cellular activity, fluids to blood circulation, etc.

NOTES:
1. This course is not acceptable in the Engineering program.
2. Students taking this course must register in both X and Y in consecutive terms; credits will be given only if both are completed consecutively.
3. Labs do not start until the second week of classes.
4. Note: Credit can only be given for one of PHYC 1000X/Y.06, 1190.03 is strongly recommended. Students not having a physics credit equivalent to Nova Scotia Grade 12 Physics are strongly advised to take PHYC 0010.00 available in the summer and in the fall term. The College of continuing Education at: http://collegeofcontinuinged.dal.ca

EXCLUSION: Credit will be given for only one of PHYC 1000X/Y.06, 1190.03, 1290.03, 1300X/Y.06, or 1310.03

PHYC 1310.03/1320.03: Physics in and Around You.

These two half courses are, as a pair, equivalent to PHYC 1300X/Y.06. They are available ONLY to accommodate special circumstances; permission from the Department is required for students not in Kinesiology. PHYC 1310.03 is strongly recommended for all first year Kinesiology students. PHYC 1320.03 is strongly recommended for Kinesiology students considering the Ergonomics stream. See the Health and Human Performance section of this calendar.

EXCLUSION: Credit will be given for only one of PHYC 1000X/Y.06, 1190.03, 1290.03, 1300X/Y.06, or 1310.03

PHYC 1340X/Y.06: Physics in and Around You.

These two half courses are, as a pair, equivalent to PHYC 1300X/Y.06. They are available ONLY to accommodate special circumstances; permission from the Department is required for students not in Kinesiology. PHYC 1310.03 is strongly recommended for all first year Kinesiology students. PHYC 1320.03 is strongly recommended for Kinesiology students considering the Ergonomics stream. See the Health and Human Performance section of this calendar.

EXCLUSION: Credit will be given for only one of PHYC 1000X/Y.06, 1190.03, 1290.03, 1300X/Y.06, or 1310.03
PHYC 1450X/Y.06: Astronomy: The Evolving Universe. Both the universe and our understanding of it are evolving. Topics include naked eye astronomy, understanding stars, and our understanding of the solar system (planets, moons, and the recently discovered "other" planetary systems. We examine our advances in the study of stars, galaxies, and the universe at large. Finally, we introduce the idea that the universe may be infinite.

EXCLUSION: ECON2850.06, PHYC2850.06
CROSS-LISTING: GEOG 2800.03, OCEA 2800.03

PHYC 2452.03: Astronomy II: Stars and Beyond. This course is the second part of an introduction to astronomy for science students. This course builds on the knowledge gained in PHYC 2451.03 to study the nearest star (the Sun) and develops due to the behavior of objects outside the Solar System like stars, pulsars, quasars and black holes. Finally, galaxies and the Universe as a whole (cosmology) are studied with questions like, "will the universe expand forever - or will it collapse in the Big Crunch?". How do we know all of this and how well do we know it?

FORMAT: Lecture 3 hours, tutorial 1.5 hours
PREREQUISITE: PHYC 2451.03, or PHYC 1200.03 or PHYC 1201.03 and MATH 1000/1001 or permission of the instructor

PHYC 2450.03: Astronomy I : The Sky and Planets. An introduction to astronomy for science students. If you have ever marveled at the beauty of the night sky and yearned to learn a little about how Science can help us understand it, then this course (and its companion PHYC 2452.03) is for you. After learning the fundamentals, (observation, planetary motion, and telescopes), we will study the Solar System, primarily the planets and their major satellites.

FORMAT: Lecture 3 hours
PREREQUISITE: PHYC 2451.03 or permission of the instructor
EXCLUSION: PHYC 2450.06 XY

PHYC 2510.03: Electricity and Magnetism. This course will develop the vector calculus needed for the description of electric and magnetic fields. Other topics include scalar and vector potentials, force on charges, magnetic induction and Maxwell’s equations. The course will give students the necessary foundation for an understanding of more advanced topics in electricity and magnetism.

FORMAT: Lecture 3 hours, tutorial 1 hour
PREREQUISITE: PHYC 2150.03, a multi-variable calculus course (MATH 2001.03/2002.03), which can be taken concurrently, or permission of the instructor

PHYC 2515.03: Modern Physics. This course introduces two physics revolutions: Einstein's theory of special relativity and the theory of quantum mechanics. Important early experiments are considered throughout the course. We concentrate on length contraction, time dilation, and relativistic kinematics. Then, to account for wave-like properties of matter, we introduce complex wave functions in one dimension and show how these lead to energy quantization, Schrodinger's equation, and penetration into classically forbidden regions. Other topics of modern physics, such as random walks (transport theory) may be introduced. A tutorial is offered.

FORMAT: Lecture 3 hours, tutorial 1.5 hours
PREREQUISITE: PHYC 2150.03 or PHYC 1200.03 or PHYC 2450.03 or MATH 1500X/1501X or MATH 1502X/1503X or permission of the instructor

PHYC 2610.03: Introduction to Biomechanics. This course introduces two physics revolutions: Einstein's theory of special relativity and the theory of quantum mechanics. Important early experiments are considered throughout the course. We concentrate on length contraction, time dilation, and relativistic kinematics. Then, to account for wave-like properties of matter, we introduce complex wave functions in one dimension and show how these lead to energy quantization, Schrodinger's equation, and penetration into classically forbidden regions. Other topics of modern physics, such as random walks (transport theory) may be introduced. A tutorial is offered.

FORMAT: Lecture 3 hours, tutorial 1.5 hours
PREREQUISITE: PHYC 2150.03 or PHYC 2451.03 or PHYC 1200.03 or MATH 1500X/1501X or MATH 1502X/1503X or permission of the instructor

PHYC 2700.03: Introduction to Biomechanics. This course provides an introduction to mechanical and analytical concepts applied to the study of biological systems, particularly human movements and tissues. It expands on the knowledge acquired in PHYC 2701.03, the mechanics of the body, and deals with the mechanics of movement and muscle function in the human body. The primary goal of the course is to learn the basic mechanical concepts about the human body.

FORMAT: Lecture 3 hours
PREREQUISITE: PHYC 2701.03
EXCLUSION: PHYC 2701.03

PHYC 2800.03: Climate Change. The workings of the Earth's climate system are examined and then applied to help understand contemporary climate change. The role of numerical climate models is discussed with the aim of interpreting climate change predictions for the coming decades. Finally the impacts of climate change are studied with a focus on the various mitigation and adaptation strategies needed.

FORMAT: 3 hours
CROSS-LISTING: GEOG 2800.03, OCEA 2800.03
EXCLUSION: ECON2800.06, PHYC2850.06
PHYC 2850.06: The Science and Economics of Climate Change.
This course examines how climate change will impact the environment and human activities, and how to formulate and implement economically realistic solutions. It integrates the physical and biological science with economics in order to analyze the response options as we move towards a carbon-neutral society.
FORMA T: Lecture
CROSS-LISTING: ECOS 2850

PHYC 3000.03: Experimental Physics I.
This course introduces students to electronics and measuring techniques. Topics include digital electronics: logic gates, clocks, shift registers, counters, memory; analog electronics: R.C.L. circuits, operational amplifiers; electronic systems: A/ D and D/A chips, compute chips, and displays. The course also introduces students to modern data acquisition methods (including LabVIEW), skills which will be applied in the design and execution of experiments that illustrate fundamental concepts in physics. This course is open to Honours students only.
NOTE: This course has no final examination. Student evaluation is through performance on assignments and projects, and evaluation of written lab reports.
FORMAT: Lecture 3 hours, lab 6 hours
PREREQUISITE: PHYC 3000.03 with a minimum grade of B, or permission of the instructor.

PHYC 3050.03: Introduction to Numerical Programming.
This course explores computer programming for numerical computation. It introduces a modern programming language and it uses it to model simple physical systems (for example, projectile motion with realistic drag). Techniques are introduced to solve the governing equations. An important aspect is the interpretation of modelled results and comparison with experiment.
FORMAT: Lecture 1.5 hours, lab 6 hours
PREREQUISITE: PHYC 3000.03 with a minimum grade of B, or permission of the instructor.

PHYC 3180.03: Contemporary Physics.
This course covers a variety of topics related to areas of current interest in physics. Presently, topics include high temperature superconductivity, quantum hall effect, neutrino oscillations, gravitational radiation and fusion reactors.
FORMAT: Lecture 3 hours
PREREQUISITE: PHYC 1280.03/1290.03 or equivalent, or MATH 1010.03 or equivalent.

PHYC 3200.03: Thermodynamics.
An introduction to the basic concepts and laws of thermodynamics. There will be a short survey of required Mathematics (partial derivatives). Topics include thermometry, equations of state, entropy and entropy, thermodynamic potentials, heat engines, thermodynamic efficiency and phase transitions.
FORMAT: Lecture 3 hours, tutorial 1.5 hours
PREREQUISITE: PHYC 2140.03, MATH 2001.03/2002.03, or permission of the instructor.

PHYC 3210.03: Statistical Mechanics.
Using statistical entropy, we will explore how macroscopic thermodynamic behavior emerges from microscopic models. We will consider the statistical foundations, canonical, and the grand canonical statistical ensembles. We will examine two-state systems as well as non-interacting Fermionic and Bosonic systems. Finally, we will learn about descriptively simple animating systems such as the Ising model.
PREREQUISITE: PHYC 3200.03 or equivalent, MATH 2001.03/2002.03

PHYC 3250.03: Computational Methods in Physics.
The objective of this course is to teach students the use of computers in physical analysis. The UNICS operating system will be introduced and used throughout the course. A modern programming language will be applied to a selection of problems drawn from physical theory and experiment. This is a hands-on, practical, and interactive class with an emphasis on the development of computational skills that scientists use.
PREREQUISITE: PHYC 1280.03/1290.03 or equivalent, MATH 1010.03 or equivalent.

PHYC 3303.03: Materials Science.
The emphasis is on the principles involved in understanding physical properties of materials, such as ferromagnetism, mechanical stability, and electrical and optical properties. All phases of matter are examined: gases, liquids, films, liquid crystals, perfect crystals, defective solids, glasses. Important processes such as photography and Xerography are explained.
FORMAT: Lecture 3 hours
PREREQUISITE: CHEM 2101.03 or PHYC 2100.03 (which may be taken concurrently) or CHEM 2001.03/2002.03 or ENVG 2000.03 or permission of the instructor.
CROSS-LISTING: CHEM 3303.03

PHYC 3340.03: Electronics.
Topics include digital electronics: logic gates, clocks, shift registers, counters, memory; analog electronics: R.C.L. circuits, operational amplifiers; electronic systems: A/D and D/A chips, compute chips, and displays.
NOTE: Credit cannot be given for both PHYC 3300.03 and PHYC 3340.03.
FORMAT: Lecture 3 hours, lab 3 hours
PREREQUISITE: PHYC 2150.03, or ENGI 2001.03

PHYC 3640.03: Quantum Physics I.
This course introduces the formal structure of quantum mechanics as well as quantum mechanical calculations. The emphasis is on problem solving. The course starts with quantum mechanics, then considers particles in a box and the quantum harmonic oscillator. The course starts with one-dimensional quantum mechanics and ends with higher dimensional problems. The course introduces quantum mechanical operators, time-evolution, quantum angular momentum, and the solution of the hydrogen atom.
PREREQUISITE: MATH 2002.03, MATH 2010.03, PHYC 2150.03 and PHYC 2160.03

PHYC 3810.03: Microcomputers and the Real World.
Subject material: measurement theory, modern sensors, microcomputer architecture, and software simulation of digital electronic circuits. Interfacing techniques including PIC and microprocessor ports. The graphical programming language is used throughout.
FORMAT: Lecture 3 hours, computer lab 1.5 hours
PREREQUISITE: PHYC 2150.03, PHYC 3340.03
CROSS-LISTING: CSC 3120.03

PHYC 3900.03: Introduction to Soft Condensed Matter Physics.
The aim of this course is to provide an introduction to some concepts used in soft condensed matter physics through the study of three systems, polymers, colloids and liquid crystals.
The course will be divided in four modules:
I) Brownian dynamics and diffusion
II) Polymers shape, molecular mass distribution, osmotic pressure, gel, entropic elasticity
III) Colloids: van der Waals and electrostatic interactions, Hamaker constant, DLVO theory, polymer layers (brushes), gel electrophoresis
IV) Liquid crystals: order parameter, optical properties of nematics (birefringence), phase transitions, LCD

PREREQUISITE: MATH 2001.03, 2002.03, PHYC 2515.03 and PHYC 2150.03

PHYC 4151.03: Quantum Physics II.
This course is a continuation of PHYC 3640.03. Topics include: the spin-1/2 problem, quantum dynamics, entanglement and the EPR Paradox, perturbation theory, statistical mechanics, and the quantum radiation field.
PREREQUISITE: Lecture 3 hours
CROSS-LISTING: PHYC 3810.03

PHYC 4160.03: Mathematical Methods of Physics.
Topics discussed include: complex variable theory, Fourier and Laplace transforms, special functions, partial differential equations.
FORMAT: Lecture 3 hours
PHYC 411.03: Atmospheric Dynamics I.

The basic laws of fluid dynamics are applied to studies of atmospheric motion, including the atmospheric boundary layer and synoptic-scale weather disturbances. Emphasis will be placed on the blind of mathematical theory and physical reasoning which leads to the best understanding of the dominant physical mechanisms.

FORMA T: Lecture 3 hours

PHYC 441.03: Atmospheric Physics.

Most thermodynamics is applied to a variety of atmospheric phenomena. These include arotos, cloud droplets, precipitation formation, convection, superscripts, hurricanes, lightning, and the boundary layer. We also discuss the radar equation and the interpretation of radar images.

FORMA T: Lecture 3 hours

PHYC 450.03: Atmospheric Physics.

The general overview of the atmosphere provides the student with an understanding of the composition and physical structure of the atmosphere, air masses and frontal theory and weather generating physical processes and their consequences. Other topics include atmospheric radiation, dynamic meteorology, climatology and the physics of clouds and storms.

FORMA T: Lecture 3 hours

PHYC 460.03: Cosmology.

A self-contained introduction to cosmology will be given and no prior knowledge of differential geometry or general relativity will be assumed (although some knowledge of elementary differential equations will be useful). A cosmological model is a model of the universe, as a whole, on the largest scales; the emphasis of the course will be on the modeling aspects of cosmology.

FORMA T: Lecture 3 hours

PHYC 480.03: Honours Research Project I.

Students in the honours stream in Physics and Atmospheric Science will do a research project under the direction of a faculty member. A research plan, annual progress reports and a formal final report are required. The final grade will be based on an evaluation of the reports and an oral presentation. Students in the major stream can apply to the department to take this course.

PHYC 485.03: Cosmology.

A review of differential geometry will be given followed by an introduction to the general theory of relativity. Various topics will be discussed, including: linearized theory and gravitational radiation, spherically symmetric metrics and the Schwarzschild solution, gravitational collapse, black holes, and cosmology.

PHYC 495.03: Atmospheric Chemistry.


PHYC 4595.03: Atmospheric Chemistry.

plan, interim progress reports and a formal, final report are required. The final grade will be based on an evaluation of the reports and an oral presentation.

COORDINATOR: H. Rotermund

FORMAT: Independent research, typically 6 hours/week.

PREREQUISITE: PHYC 4800 and permission of the coordinator and supervisor.

PHYC 8891.00: Co-op Work-Term I.

PHYC 8892.00: Co-op Work-Term II.

PHYC 8893.00: Co-op Work-Term III.

VI. Graduate Studies

The Department of Physics and Atmospheric Science provides courses of study leading to MSc and PhD degrees. Areas of research include condensed matter, geophysics, medical physics, soft matter, low temperature physics, theoretical physics, atmospheric physics and oceanography. Consult the Graduate Studies Calendar, the Graduate Coordinator for the Physics and Atmospheric Science Department, or the Physics and Atmospheric Science Website at http://www.physics.dal.ca.

Psychology and Neuroscience

Location: Life Sciences Centre

1355 Oxford Street

PO Box 15000

Halifax, NS B3H 4R2

Telephone: (902) 494-3417

Fax: (902) 494-6585

Website: http://www.dal.ca/psychandneuro

Dean

Moore, C. L., BA, PhD (Cambridge), University Research Professor

Chairperson of Department

Klein, R. M., BA (SUNY), MA, PhD (Oregon), University Research Professor

Academic Advisors

To contact an academic advisor, please go to the Psychology and Neuroscience Main Office (LSC 203), telephone (902) 494-3417, or visit the Psychology and Neuroscience website.

Professors Emeriti

LoLordo, V. M., AB (Brown), PhD (Penn)

Mitchell, D. E., BSc, MA (Melb), PhD (Melb)

Professors

Adams, S., BSc (Toronto), PhD (McGill), Faculty of Science Killam Professor in Psychology

Brown, E. E., BSc (Victoria), MA, PhD (Dalhousie), University Research Professor

Bryson, R. E., BA (Queen’s), PhD (McGill), Major appointment in Pediatrics, Joan and Jack Craig Chair in Autism Research

Chambers, C. L., BSc (Dalhousie), MA, PhD (UBC), Joint appointment in Pediatrics, Canada Research Chair in Pain and Child Health

Doonan, S. H., BSc (UPEI), PhD (Oxon)

Finley, G. A., BSc, MD (Dalhousie), Major appointment in Anaesthesiology

Kay-Raining Bird, E., BA (Queen’s), MSc (Columbia Univ.), PhD (U. Wisconsin - Madison), Major appointment in the School of Human Communication Disorders

Kiefte, M., BA (Memorial), MSc, PhD (Alberta), Major appointment in the School of Human Communication Disorders

Klein, R. M., BA (SUNY), MA, PhD (Oregon), University Research Professor

McGrath, P., BA, MA (Queen’s), PhD (Queen’s), Canada Research Chair in Pediatric Pain

McMullen, P., BSc, MSc (Toronto), PhD (Waterloo)

Moore, C. L., BA, PhD (Cambridge)

Phillips, D. P., BSc, PhD (Memorial)

Pokorny-Eden, B., MD, PhD (Univ. of Heidelberg), Major appointment in Neurology

Rauck, R., BA (Toronto), PhD (Berkley), FRSC, Joint appointment in Psychiatry and Neurology

Sarno, K., Ph.D (Dalhousie), PhD (Rutgers), Major appointment in Medical Neuroscience

Stewart, S., BSc (Dalhousie), PhD (McGill), Joint appointment in Psychiatry

Taylor-Helmick, T. L., BA (Calgary), MSc, PhD (Dalhousie)

Tolivo, P., BSc (Mt. A), BMedSci, MD (Memorial), Major appointment in Psychiatry

Ungar, M., BA, BSW, MSW (McGill), PhD (Wilfrid Laurier), Major appointment in the School of Social Work
Associate Professors
Ahmed, A., BSc (Ottawa), MD (Dalhousie), FRCP(C) (Toronto), Major appointment in Psychiatry
Barnett, S. A., BA (McGill), MD (Dalhousie), Clinical PhD Program Director of Training
Calvert, P. V., BSc (Dalhousie), MA, PhD (Gillie) (Toronto), Clinical PhD Program Director of Training
Crowell, N. A., BSc, PhD (Alberta)
Duffy, K., BA (Toronto), MD (McMaster)
Eades, K. A., BA, PhD (Brock)
Edgar, J., BSc, MD (Newfoundland), MSc, PhD (Dalhousie)
Fekete, J., BSc, MD (Western), Major appointment in Psychiatry
Good, L., BSc (Winnipeg), MSc, PhD (Ottawa)
Jacques, S., BA (McGill), MA, PhD (Toronto)
Johnson, S., BA (Memorial), MSc, PhD (Dalhousie)
Henderson, A. J., BA (Winnipeg), MSc, PhD (Western)
Neumann, A. J., BA (Winnipeg), MSc, PhD (Harvard)
Perrett, T. S., BSc (Western)
Phillips, L., BA (Winnipeg), MA, PhD (Queen’s)
Richards, L., BSc (Dalhousie), MA, PhD (Simon Fraser), Major appointment in Psychiatry
Sherry, B. B., BA (York), MA, PhD (Dalhousie), Major appointment in Psychiatry
Uhr, R., MRCPsych (Royal College of Psychiatrists), PhD, MEd (Charles University), Major appointment in Psychology
Assistant Professors
Allen, S. A., BSc (Western), PhD (Toronto), Major appointment in the School of Human Communication Disorders
Boe, S., BSc (Brock), PhD, MPT (Western), Major appointment in the School of Family Medicine
Chorney, J., BSc (Dalhousie), MA, PhD (West Virginia), Major appointment in Anesthesiology
Durruthy, L., BA (Saint Mary’s), MA, PhD (Montreal), Major appointment in the School of Nursing
Dunn, S., BSc, MSc, PhD (Dalhousie), Major appointment in the School of Health and Human Performance
Ferguson, R., BSc (Victoria), MSc, PhD (Ottawa), Major appointment in Anesthesiology
Weaver, W. C. G., BC (Alberta), BSc (Brock), MA, PhD (McGill)
Westwood, D. A., BSc, MA, PhD (Waterloo), Major appointment in the School of Health and Human Performance
Senior Investigators
Gawdowski, S., BSc, MA, PhD (University of Toronto), MD (Dalhousie)
Jacobs, T., BA, MA (Natal), PhD (Dalhousie)
Ples, E., BS Education (Univ. of New Mexico), MA, PhD (Texas Women’s University)
Sampson, L. L., BSc (Dalhousie), PhD (Cambridge), Undergraduate Program Coordinator
Adjunct Professors
Bachman, J. L., BA (Dalhousie), MA, PhD (Carleton), Erica Biker Psychological Services
Baroni, J., BSc (Boston), MA (S. Carolina), MS, PhD (Wisc), Psychology and Neuroscience/Dalhousie
Chepman, K., BA (UPEI), MA, PhD (Western), Neuropsychology Service/Novascotia Health Sciences
Church, E., BA (St. John’s), MA, PhD (Toronto), School Psychology/Mount Saint Vincent
Cohen, A. J., BA (McGill), MA, PhD (Queen’s), Psychology/UPEI
D’Arms, R. H., BSc (Victoria), MSc, PhD (Dalhousie), Engineering and Computing Science/Simon Fraser
Ebert, P., BSc, MSc (Toronto), PhD (Victoria), Sensors Memory Clinic/Ontario Shores Centre for Mental Health Sciences
Ellsworth, C. B., BA (McMaster), MA, PhD (Queen’s), Psychology/WK Health Crimes
Fisher, D., BSc, MSc, PhD (Carleton), Psychology/Mount Saint Vincent
Frankland, B. W., BSc (McMaster), MA, PhD (Dalhousie)
Glin Gore, D., BSc (Northern Michigan), MA, PhD (Missouri-St. Louis), Psychology/Saint Mary’s
Haid, Z., PhD (Johann Wolfgang Goethe Un., Frankfurt), Psychology/St. Francis Xavier
Ivancic, J., BSc, MA (Queen, PhD (Dalhousie), Psychology/Saint Mary’s
LaLonde, V. M., BA, PhD (Brown), PhD (Dalhousie), Psychology and Neuroscience/Dalhousie
MacDonald, W. G., BA (St. FX), MA, PhD (Windsor), Private Practice
Marchand, Y., MSc (Univ. of Paris), PhD (Compagney)
McLeod, P., BA (McMaster), MA, PhD (Dalhousie), Psychology/Queen’s
Monk, J., BA (Toronto), MA, PhD (Western), Surgery/Saskatchewan
Mitchell, D. E., BSc, MEng, PhD (McMaster), Psychology and Neuroscience/Dalhousie
Ottawa, B., BA (York), MA, PhD (Dalhousie), Psychology and Neuroscience/Dalhousie
Pennock, S. B., MBA (Dalhousie), MA, PhD (McMaster), Psychology/Queen’s
Perrett, T. S., BSc (Western), Psychology/Mount Saint Vincent
Price, D. J., BSc (Toronto), MSc, PhD (Dalhousie), Psychology and Neuroscience/Dalhousie
Rice, J., BA (Queen’s), PhD (Dalhousie), Psychology and Neuroscience/Dalhousie
Robb, D., BSc (Alberta), MA, PhD (McMaster), Psychology/Saint Mary’s
Smith, S. M., BA (Bishop’s), MA, PhD (Queen’s), Psychology/Saint Mary’s
Song, C., BSc (East China Normal Univ.), MD (University of Chinese Academy of Sciences), PhD (National University of Ireland), Psychiatry (University of Chinese Academy of Sciences), Major appointment in the School of Health and Human Performance
Town, J., BSc (York), DClinPsy (University of Sheffield), Major appointment in the School of Health and Human Performance
Rosen, N. O., BA (Queen’s), PhD (McGill), Major appointment in Psychiatry
Lovas, D., BSc, MD (Dalhousie), Major appointment in Psychiatry
Kiron, N., BA (Dalhousie), MA, PhD (Queen’s), Psychology/Mount Saint Vincent
Porter, S. B., BA (Dalhousie), MA, PhD (Simon Fraser), Major appointment in the School of Nursing
Stuart, A., BA (Sheffield), MA, PhD (Laval), Études de psychologie/Université de Montréal
Schulkin, L., BSc, MSc, PhD (Dalhousie), Psychology and Neuroscience/Dalhousie
Share, S. R., BSc (London), PhD (St. Andrews), Psychology and Neuroscience/Dalhousie
Perrett, T. S., BA (McMaster), MA, PhD (McMaster), Psychology in the School of Health and Human Performance
Senior Investigators
Gawdowski, S., BSc, MA (University of Toronto), PhD (Dalhousie)
Jacobs, T., BA (Natal), PhD (Dalhousie)
Ples, E., BS Education (University of New Mexico), MA, PhD (Texas Women’s University)
Sampson, L. L., BSc (Dalhousie), PhD (Cambridge), Undergraduate Program Coordinator
Adjunct Professors
Bachman, J. L., BA (Dalhousie), MA, PhD (Carleton), Erica Biker Psychological Services
Baroni, J., BSc (Boston), MA (S. Carolina), MS, PhD (Wisc), Psychology and Neuroscience/Dalhousie
Chepman, K., BA (UPEI), MA, PhD (Western), Neuropsychology Service/Nova Scotia Health Sciences
Church, E., BA (St. John’s), MA, PhD (Toronto), School Psychology/Mount Saint Vincent
Cohen, A. J., BA (McGill), MA, PhD (Queen’s), Psychology/UPEI
D’Arms, R. H., BSc (Victoria), MSc, PhD (Dalhousie), Engineering and Computing Science/Simon Fraser
Ebert, P., BSc, MSc (Toronto), PhD (Victoria), Sensors Memory Clinic/Ontario Shores Centre for Mental Health Sciences
Ellsworth, C. B., BA (McMaster), MA, PhD (Queen’s), Psychology/WK Health Crimes
Fisher, D., BSc, MSc, PhD (Carleton), Psychology/Mount Saint Vincent
Frankland, B. W., BSc (McMaster), MA, PhD (Dalhousie)
Glin Gore, D., BSc (Northern Michigan), MA, PhD (Missouri-St. Louis), Psychology/Saint Mary’s
Haid, Z., PhD (Johann Wolfgang Goethe Un., Frankfurt), Psychology/St. Francis Xavier
Ivancic, J., BSc, MA (Queen, PhD (Dalhousie), Psychology/Saint Mary’s
LaLonde, V. M., BA, PhD (Brown), PhD (Dalhousie), Psychology and Neuroscience/Dalhousie
MacDonald, W. G., BA (St. FX), MA, PhD (Windsor), Private Practice
Marchand, Y., MSc (Univ. of Paris), PhD (Compagney)
McLeod, P., BA (McMaster), MA, PhD (Dalhousie), Psychology/Queen’s
Monk, J., BA (Toronto), MA, PhD (Western), Surgery/Saskatchewan
Mitchell, D. E., BSc, MEng, PhD (McMaster), Psychology and Neuroscience/Dalhousie
Ottawa, B., BA (York), MA, PhD (Dalhousie), Psychology and Neuroscience/Dalhousie
Pennock, S. B., MBA (Dalhousie), MA, PhD (McMaster), Psychology/Queen’s
Perrett, T. S., BSc (Western), Psychology/Mount Saint Vincent
Price, D. J., BSc (Toronto), MSc, PhD (Dalhousie), Psychology/Saint Mary’s
Rice, J., BA (Sheffield), MA, PhD (Laval), Études de psychologie/Université de Montréal
Schulkin, L., BSc, MSc, PhD (Dalhousie), Psychology and Neuroscience/Dalhousie
Share, S. R., BSc (London), PhD (St. Andrews), Psychology and Neuroscience/Dalhousie
Perrett, T. S., BA (McMaster), MA, PhD (McMaster), Psychology in the School of Health and Human Performance
Senior Investigators
Gawdowski, S., BSc, MA (University of Toronto), PhD (Dalhousie)
Jacobs, T., BA (Natal), PhD (Dalhousie)
Ples, E., BS Education (University of New Mexico), MA, PhD (Texas Women’s University)
Sampson, L. L., BSc (Dalhousie), PhD (Cambridge), Undergraduate Program Coordinator
Adjunct Professors
Bachman, J. L., BA (Dalhousie), MA, PhD (Carleton), Erica Biker Psychological Services
Baroni, J., BSc (Boston), MA (S. Carolina), MS, PhD (Wisc), Psychology and Neuroscience/Dalhousie
Chepman, K., BA (UPEI), MA, PhD (Western), Neuropsychology Service/Nova Scotia Health Sciences
Church, E., BA (St. John’s), MA, PhD (Toronto), School Psychology/Mount Saint Vincent
Cohen, A. J., BA (McGill), MA, PhD (Queen’s), Psychology/UPEI
D’Arms, R. H., BSc (Victoria), MSc, PhD (Dalhousie), Engineering and Computing Science/Simon Fraser
Ebert, P., BSc, MSc (Toronto), PhD (Victoria), Sensors Memory Clinic/Ontario Shores Centre for Mental Health Sciences
Ellsworth, C. B., BA (McMaster), MA, PhD (Queen’s), Psychology/WK Health Crimes
Fisher, D., BSc, MSc, PhD (Carleton), Psychology/Mount Saint Vincent
Frankland, B. W., BSc (McMaster), MA, PhD (Dalhousie)
Glin Gore, D., BSc (Northern Michigan), MA, PhD (Missouri-St. Louis), Psychology/Saint Mary’s
One type is a research laboratory in which students will conduct research, collect data and write reports on the results of the research. All Major and Honours students must take the second-year research laboratory course (PSYO 2000.03) and at least one third-year research laboratory course (full credit for Honours students).

The other type is a proficiency or skills laboratory, which usually involves additional work in computer exercises related to the lecture material and course readings.

II. Degree Programs

The department offers the following degree programs:
- BA and BSc (20 credit) Honours in Psychology
- BA (20 credit) Major in Psychology
- BA and BSc (15 credit) Minor in Psychology

While these programs are described below, a more detailed and up-to-date description is available from the Psychology and Neuroscience Main Office (Life Sciences Centre, Room 3263) in a pamphlet titled "A Student’s Guide to Psychology Classes" (also available online at the Department’s website: http://www.dal.ca/psychandneuro).

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 123 of this calendar.

A. BA or BSc (20 credit) Honours in Psychology

Students enrolled in either the BA or BSc Honours program must take at least nine full credits (or half-credit equivalents) in Psychology courses beyond the 1000 level. BA Honours students can count no more than 11 full credits (or half-credit equivalents) beyond the 1000 level.

Students should follow the course sequence recommended below. Although there is considerable flexibility for the student, it is important to plan carefully (this is especially true for those considering graduate work in Psychology). Additional information or advice about the program can be obtained from an Honours Advisor. Students can be put in touch with an academic advisor by contacting the Psychology and Neuroscience Main Office (Life Sciences Centre, Room 3263 or 494-3417). Detailed descriptions of the Honours application process may be found on the departmental website: http://www.dal.ca/psychandneuro.

Registration Notes:
1. Students wishing to undertake an Honours program must meet with an Honours advisor, and complete a Departmental Honours Application form. The earliest students can apply for admission to the Honours program is in January of their third year of study. Admission to Honours in September will require a grade of B or better in PSYO 2000.03 and an A- average in the last six completed Psychology half credits. Application may be delayed until the end of the third year, in which case, a grade of B or better in PSYO 2000.03 and an A- average in the last nine completed Psychology half credits will be required. Both Departmental (and then University) approval is required for formal admission to the Honours program. A detailed description of the Honours application process can be found on the departmental website: http://www.dal.ca/psychandneuro.

2. It is recommended that students in the Honours program obtain the agreement of a willing thesis research supervisor, and begin laying the groundwork for their thesis research (e.g., background reading, locating laboratory methodology, submission of ethics forms, etc.) no later than during the summer preceding the thesis year.

3. Students taking an Honours degree in Psychology cannot use cross-listed Neuroscience courses as electives.

4. Laboratory courses focusing on human psychology typically require students to serve as participants and/or as experimenters in course projects. Students who do not wish to participate in such projects should ensure that they have the prerequisites necessary to register in alternative laboratory courses.

Departmental Requirements

1800 level
- PSYO 1011.03 or PSYO 1021.03 and PSYO 1012.03 or PSYO 1022.03, or SCI6 1515X/Y, 1520X/Y, 30 or SCI6 1540X/Y with a grade of B or better.

2000 level
- A normal second-year program will include three required half-credit courses and three elective half-credit courses in Psychology. Care should be taken in selecting

---

Psychology

Location: Department of Psychology and Neuroscience
Life Sciences Centre
1355 Oxford Street
PO Box 15000
Halifax, NS B3H 4R2
Tel: (902) 494-3000
Fax: (902) 494-6585
Website: http://www.dal.ca/psychandneuro

Dean
Moore, C. L., BA, PhD (Cantab)

I. Introduction

Psychology is an experimental science: Its purpose is to discover the conditions which control the activities of animals and people; to measure these conditions and the responses they produce, and to use this knowledge to invent ways of predicting behaviour and changing it. It is a subject for inventive but also scientifically rigorous people, better suited to those who want to find out for themselves than to those who want to be told what to believe.

Psychology at Dalhousie treats behaviour as a natural phenomenon, and that in some degree much with the other life sciences. Today, for example, the boundary that historically has separated psychology from zoology, physiology, or even cellular biology has begun to blur. On the other hand, important ties are being made to such disciplines as anthropology, sociology, and philosophy. The student will find that the diverse subject matter includes three major levels of analysis: the organism, the organism’s biological machinery, and the broader social-environmental context in which particular behaviour patterns are expressed. Meaningful integration of these diverse levels and forms of analysis is an intellectual challenge of major proportions. Similarly, the time perspectives of immediate causation, development, evolution, and function all contribute to the modern approach to behavioural science and each must be evaluated in relation to the others.

A. Enrolment Limitations

Psychology is a popular program, and we have a high enrolment of students. Potential Major and Honours students, and those intending to enrol in the 15 Credit BA or BSc Minor program, in Psychology should note that there are limitations on the number of students that can be accepted into these programs in any given year. Preventing introductory psychology courses with the required grade of B- and declaring an intent to Major in Psychology does not guarantee a place in any of these programs. Students are advised to register as early as possible for required courses to secure a space within a program.

There are strict size restrictions on individual courses. Lecture courses are limited by room size. Additional size restrictions are imposed on laboratory courses because of equipment limitations and the much closer supervision required. Neuroscience courses as electives.

B. Enrolment of Other Students

Only Major and Honours students in Psychology may enrol in PSYO 2000.03, 2770.03 and 2501.03, and such students are given preference in other second-year courses. All students must have at least a B- in a full-credit of introductory Psychology courses, or the psychology component of a DESP course, in order to register in any second-year course in Psychology.

C. Laboratories

Several courses include a laboratory component, of which there are two types. One type is a research laboratory in which students will conduct research, collect

---

Psychology 567
second-year elective courses to ensure they will provide the necessary prerequisites for courses intended to be taken in the third and fourth years of study.

Required Second-Year Courses are:

- PSYO 2501.03: Statistical Methods I (or STAT 2080.03)
- PSYO 2570.03: Systems Neuroscience

Note: PSYO 2770.03 will not be offered in 2014/2015.

Elective Second-Year Courses are:

- Three half credits required from:
  - PSYO 2770.03: Brain and Behaviour
  - PSYO 2501.03: Statistical Methods I (or STAT 2080.03)
  - PSYO 2000.03: Methods in Experimental Psychology, with a grade of B or better

If Psychology is chosen as the primary subject in a Combined Honours program, the following courses should be taken.

Overall Total = 7.5 full credits or 15 half-credit courses.

B. BA or BSc (20 credit) Combined Honours

It is possible for students to take an Honours degree combining Psychology with another subject (other than Neuroscience). Students proposing to take such a course of study must consult with an Honours advisor in both departments to arrange program details.

Overall Total = nine full-credit or 18 half-credit courses
Four full credits or eight half credits at or above the 3000 level are required.

3000 level
• Two full credits, or four half credits, at or above the 3000 level are required to graduate. Students must take a minimum of one half-credit course from each of Category A and Category B courses, and must complete a designated half-credit laboratory (LAB) course.

C. BA or BSc (20 credit) Major in Psychology
BA students must take at least seven and no more than nine full credits (or half-credit equivalents) in Psychology courses beyond the 1000 level. BSc students must take at least seven full credits (or half-credit equivalents) in Psychology courses beyond the 1000 level. All Major students must complete four full credits (or half-credit equivalents) in courses numbered 3000 or above. Students should plan carefully and, if required, obtain advice from an academic advisor.

3000 level
• PSYO 2770.03: Brain and Behaviour
• PSYO 2501.03: Statistical Methods I (or STAT 2080.03)

Required Second-Year Courses are:
• PSYO 2000.03: Methods in Experimental Psychology, with a grade of B or better
• PSYO 2140.03: Learning
• PSYO 2160.03: Animal Behaviour
• PSYO 2220.03: Abnormal Behaviour
• PSYO 2270.03: Cellular Neuroscience

Overall Total = four full or eight half credits

3000 level
• Two full credits, or four half credits, at or above the 3000 level are required to graduate. Students must take a minimum of one half-credit course from each of Category A and Category B courses, and must complete a designated half-credit laboratory (LAB) course.

C. BA or BSc (20 credit) Major in Psychology
BA students must take at least seven and no more than nine full credits (or half-credit equivalents) in Psychology courses beyond the 1000 level. BSc students must take at least seven full credits (or half-credit equivalents) in Psychology courses beyond the 1000 level. All Major students must complete four full credits (or half-credit equivalents) in courses numbered 3000 or above. Students should plan carefully and, if required, obtain advice from an academic advisor.

3000 level
• PSYO 2770.03: Brain and Behaviour
• PSYO 2501.03: Statistical Methods I (or STAT 2080.03)

Required Second-Year Courses are:
• PSYO 2000.03: Methods in Experimental Psychology, with a grade of B or better
• PSYO 2140.03: Learning
• PSYO 2160.03: Animal Behaviour
• PSYO 2220.03: Abnormal Behaviour
• PSYO 2270.03: Cellular Neuroscience

Overall Total = four full or eight half credits

D. BA or BSc (20 credit) Double Major in Psychology
Students may combine a Major in Psychology with a Major in another subject such as Biology or Biochemistry. A minimum of 10 full credits above the 1000 level are required in the two subjects chosen. No fewer than five full credits must be taken in each subject.

The minimum required courses in Psychology are:
• PSYO 2000.03: Methods in Experimental Psychology, with a grade of B or better
• PSYO 2140.03: Learning
• PSYO 2220.03: Animal Behaviour

Overall Total = seven full-credit or 14 half-credit courses

E. BA or BSc (15 credit) with Minor in Psychology
A BSc or BA (15 credit) degree program with a Minor in Psychology is available to students in the Faculty of Science.

Psychology 569
Departmental Requirements

- A minimum of 18 credit hours in Psychology (PSYO) courses at the 2000 level or higher, other than PSYO 2000.01 and PSYO 2801.03, which are restricted to students in a Major or Honours program.

Note that there are prerequisite requirements for entry into upper-level Psychology (PSYO) courses.

F. Minor in Psychology

Students in other 20-credit degree programs may choose to include a Minor in Psychology in their program. Requirements are outlined in the College of Arts and Science Minor section of this Calendar (page 141).

G. Minors available to students in Psychology

Minors allow students to develop skills in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year major or concentrated honours program, including co-op programs.

Students in a 20 credit BSc or BA program in Psychology may choose to include a Minor selected from the list of approved Minors beginning on page 132 in this Calendar. Note that courses counted toward a Major or Honours program cannot be used to fulfill the requirements of a Minor program.

H. BSc/Engineering or BA/Engineering Concurrent Programs

Students will normally complete the requirements for a 15 Credit BSc or 15 Credit BA, and the first two years of engineering studies leading to the Diploma in Engineering. The concurrent program can be completed in three years. Details are provided in the College of Arts and Science Degree Requirements on page 132 of the calendar.

I. Certificate Programs

A number of Certificate programs are available to students enrolled in an Honours, Major, or Minor program in Psychology. Please click here for full listing of available certificates (see page 141).

NOTE: Courses counted toward a Major, Honours or Minor program may also be used to fulfill the requirements of a Certificate.

Certificates offered through the Department of Psychology and Neuroscience include:

Certificate in Animal Behaviour

(Contact Dr. Shelley Adamo, shelley.adamo@dal.ca)

The Certificate program is a collaborative effort of both the Biology and the Psychology and Neuroscience departments. It provides students an opportunity to provide the Certificate Coordinator with a research project that will accord them an animal behaviour specialization.

The Certificate program is a collaborative effort of both the Biology and the Psychology and Neuroscience departments. It provides students an opportunity to provide the Certificate Coordinator with a research project that will accord them an animal behaviour specialization.

Certificate Coordinator: L. Stevens

NOTE: To enrol in 2000-level Psychology courses, a grade of B- is required in the material covered in lectures. Instructors with expertise in the topics covered. Biweekly labs add depth to the material covered in lectures.

III. Course Descriptions

Note: Not all of the courses listed below are offered every year. Please consult the current timetable to determine if a course is offered.

In 2006-2007, the full credit Introduction to Psychology courses were divided into two half-credit courses, PSYO 1000.06 and PSYO 2801.03. Statistical Methods for Data Analysis and Inference

BIOL 2062.03: Behavioral Ecology on PSYO/NESC 3622.03: Advanced Animal Behavior: Theories and Applications

BIOL 3622.03: Ornithology

BIOL 3627.03: Ecology and Evolution of Fishes

BIOL 3629.03: Field Studies of Marine Mammals

BIOL 3803.03: Applied Field Methods in Fish Ecology

PSYO/NESC 3000.06: Independent Research in Modern Psychology (Animal Behaviour topic)

PSYO/NESC 3011.03: Directed Research Project in Psychology (Animal Behaviour topic)

PSYO/NESC 3019.03: Neuroscience and Learning

PSYO/NESC 3029.03: Laboratory Methods of Learning and Conditioning

PSYO/NESC 3121.03: Advanced Animal Behaviour

PSYO/NESC 3150.03: Neuroethology

PSYO/NESC 3170.03: Hormones and Behaviour

PSYO/NESC 3180.03: Psychoneuroimmunology/Ecological Immunology

PSYO/NESC 3870.03: Genes, Brain and Behaviour

4000 level

BIOL 4040.03: Topics in Behavioural Biology

BIOL 4060.03: Marine Mammalogy

BIOL 4230.03: Biostatistics in Ecology

BIOL 4800.06: Special Topics (Animal Behaviour topic)

BIOL 4800.03, 4867.03: Special Topics (Animal Behaviour topic)

3. A grade of B- in one half credit or more of independent research in Animal Behaviour.

The research topic must be pre-approved by the Certificate Coordinator prior to the start of their research course (i.e., PSYO/NESC 3000.06, PSYO/NESC 3011.03, PSYO/NESC 4800.06, BIOL 4060.03, BIOL 4087.03, or BIOL 4900.06). Honours students are encouraged to complete their Honours thesis on a topic in Animal Behaviour to fulfill this requirement.

Students are also encouraged to further develop their study design and analysis skills by taking additional courses such as BIOL 4060.03 (Design of Biological Experiments) or BIOL 4062.03 (Analysis of Biological Data).

4. Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.


The research topic must be pre-approved by the Certificate Coordinator prior to the start of their research course (i.e., PSYO/NESC 3000.06, PSYO/NESC 3011.03, PSYO/NESC 4800.06, BIOL 4060.03, BIOL 4087.03, or BIOL 4900.06). Honours students are encouraged to complete their Honours thesis on a topic in Animal Behaviour to fulfill this requirement.

Students are also encouraged to further develop their study design and analysis skills by taking additional courses such as BIOL 4060.03 (Design of Biological Experiments) or BIOL 4062.03 (Analysis of Biological Data).

4. Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.


The research topic must be pre-approved by the Certificate Coordinator prior to the start of their research course (i.e., PSYO/NESC 3000.06, PSYO/NESC 3011.03, PSYO/NESC 4800.06, BIOL 4060.03, BIOL 4087.03, or BIOL 4900.06). Honours students are encouraged to complete their Honours thesis on a topic in Animal Behaviour to fulfill this requirement.

Students are also encouraged to further develop their study design and analysis skills by taking additional courses such as BIOL 4060.03 (Design of Biological Experiments) or BIOL 4062.03 (Analysis of Biological Data).

4. Enrollment in the Certificate in Animal Behaviour program should be undertaken by students in their third or fourth year of studies when they are seeking approval of the research topic by the Certificate Coordinator.

PSYO 1012.03: Introduction to Psychology and Neuroscience I: From Neuron to Person.  
This course extends the coverage offered in PSYO 1011.03 or 1021.03 and includes material on development, cognition, intelligence, motivation, personality, social behaviour, and psychopathology. The course is taught by one or two different instructors with expertise in the topics covered. This course has no accompanying laboratory/tutorial. 
NOTE: To enrol in 2000-level Psychology courses, a grade of B- is required in PSYO 1011.02 or PSYO 1021.03 and PSYO 1012.03 or PSYO 1022.03. 
FORMAT: Lecture 3 hours

PSYO 2080.03: Social Psychology.  
The course undertakes a critical analysis of social theory and research promoting a better understanding of the complex social nature of human experience. 
NOTE: Restricted to students registered in Psychology Major or Honours programs. Students should endeavor to take PSYO 2500.03, Statistical Methods I, or STAT 2001.03 concurrently with PSYO 2080.03. Students must attend the first lecture session. 
FORMAT: Lecture 3 hours

PSYO 2090.03: Developmental Psychology.  
People change with age. This course examines the changes that occur in humans from conception through adolescence. Biological, social, cognitive, and linguistic aspects of development are considered. Theory, research, and practical implications are integrated throughout the course. 
PREREQUISITE: PSYO 1011.03 or PSYO 1021.03 and PSYO 1012.03 or PSYO 1022.03, or SCIE 1515X/Y.36, 1520X/Y.30 or 1540X/Y.27 (with a grade of B- or better) 
FORMAT: Lecture 3 hours

PSYO 2130.03: Introduction to Cognitive Psychology.  
Lectures focus on the processes involved in transforming sensory information into the meaningful everyday world that we know. Initially, emphasis is on the visual system, and how information within that system is structured and organized, followed by a consideration of the characteristic of internal representations used in thinking and remembering. 
FORMAT: Lecture 3 hours

PSYO 2140.03: Learning.  
Lectures focus on several goals: (1) providing general principles of learning, (2) understanding the behaviour of particular species, and (3) direct application to human problems. Emphasis is on understanding why researchers in animal learning do what they are currently doing (given the goals and the historical context). 
FORMAT: Lecture 3 hours

PSYO 2150.03: Perceptual Processes.  
Perception deals with the way in which our senses provide us with information about our environment. This course focuses on the process by which sensory experiences are coded, how they are interpreted by the nervous system, and how experience modifies perception. 
FORMAT: Lecture 3 hours

PSYO 2160.03: Animal Behaviour.  
Using concepts from behavioral biology and psychology, animal behaviorists attempt to explain why animals behave the way they do. The course examines topics such as mating and social systems, mate choice, the evolution of behavior, and animal communication. The behavior of a wide range of animals is studied. 
FORMAT: Lecture 3 hours

PSYO 2200.03: Methods in Experimental Psychology.  
This course provides a thorough grounding in scientific research methods used by psychologists. Lectures explore analytic procedures commonly employed to investigate human and animal behavior. Students conduct analysis in written reports a series of experiments in the laboratory to illustrate important concepts discussed in class. 
NOTE: Restricted to students registered in Psychology Major or Honours programs. Students should endeavor to take PSYO 2500.03, Statistical Methods I, or STAT 2001.03 concurrently with PSYO 2200.03. Students must attend the first lecture session. 
FORMAT: Lecture 3 hours

PSYO 2300.03: Systems Neuroscience.  
This course provides an introduction to the functional systems of the brain. We examine neural systems (e.g., the sensory systems, motor system, neurotransmitter-specific systems) individually. We explore their anatomy and function, neurological properties that make each unique, and factors that are common to all neural systems (e.g., development and plasticity).
572 Psychology

EXCLUSION: PSYO/NESC 3001.03
CROSS-LISTING: NESC 2470.03
EXCLUSION: PSYO 2770.03

PSY 2500.03: Contemporary Research Problems in Psychology
A continuation of PSY 2000.03, this course introduces prospective Honours students to the design, execution, and analysis of independent research projects. Each student works with a supervisor on a one-to-one basis preparing a research project that the student then conducts and describes in a formal written report. FORMAT: Lecture 2 hours, Lab 2 hours
PREREQUISITE: PSYO 2000.03 (with a grade of B or better); and permission of the instructor
SIGNATURE REQUIRED
NOTE: This course provides a half-year research experience. Students wanting a full-year research experience in a lab should register for PSYO 3001.03.
FORMAT: Lab 4 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, previous or concurrent enrolment in two other PSYO/NESC 3000-level courses, and Coordinator's consent.
CROSS-LISTING: NESC 2470.03
EXCLUSION: PSYO/NESC 3000X/Y.06
PSY 3010X/Y.06: Advanced General Psychology.
An active learning course for highly-qualified senior students. Students complete a series of oral and written assignments designed to consolidate critical thinking and communication skills in Psychology/Neuroscience. After instructional training, assignments include preparing and delivering lab material to a small group (< 30); of PSYO 2000.03 and 1021.03 students.
SIGNATURE REQUIRED
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
FORMAT: Lecture 2 hours, Skills Lab 1 hour
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, advanced courses in Psychology or Neuroscience, and instructor's consent.
CROSS-LISTING: NESC 3010X/Y.06
PSY 3030.03: Psychometrics.
This course focuses on the theory and method of psychological measurement. Basic and advanced analytic methods employed in quantifying human abilities, traits, and syndromes are examined. Students contribute to the design of, and report on, a new measure of behavior in the laboratory component of the course.
FORMAT: Lecture 4 hours, Research Lab 2 hours
PREREQUISITE: PSY 2600.03 or NESC 2007.03, and PSY 2501.03 or STAT 2080.03
PSY 3043.03: Neurobiology of Learning.
This course examines the neurobiological processes underlying various forms of learning such as classical and operant conditioning, song learning by birds, spatial learning, and fear conditioning. Different methods used to study the neurobiology of learning, and the evolutionary origins of these systems are also considered.
FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and one of PSYO/NESC 2140.03 or PSY 2770.03
CROSS-LISTING: NESC 3043.03
EXCLUSION: PSYO 3041.03
PSY 3044.03: Laboratory Methods of Learning and Conditioning.
A hands-on course on techniques used to test learning and memory in animals, including operant conditioning and spatial memory, and an exposure to the neurobiological processes involved. Students work in pairs to conduct a series of experiments, analyze data as a class, but write individual laboratory reports on each experiment. NOTE: Students should be aware that some data collection occurs outside of class time.
FORMAT: Research Lab 4 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, and one of PSYO/NESC 2140.03 or PSY 2770.03
CROSS-LISTING: NESC 3044.03
EXCLUSION: PSYO 3043.03
PSY 3051.03: Sensory Neuroscience I. Vision.
This course examines the neural basis for the perception of light, colour, movement, depth, and form. The course covers developmental events important for vision, and the extent to which vision is constrained by anatomical and physiological development.
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2150.03

PSYO 3052.03: Sensory Neuroscience II. Hearing and Speech.
This course explores hearing at levels that include stimulus parameters and their psychophysical correlates, middle ear function, cochlear biophysics, central auditory neurophysiology, and principles of speech perception. We emphasize mechanisms of neural hearing and speech, but address pathology whenever it helps us understand the relation between neurophysiology and perception.
FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and PSYO 2470.03
CROSS-LISTING: NESC 3052.03

PSYO 3082.03: Experimental Social Psychology.
The course attempts to develop students' skill level in empirical analysis of social psychology phenomena. Students complete two research projects during the term. The projects involve testing subjects, coding data, computer data analysis, and report writing. Familiarity with computer-based statistical analysis and text processing is strongly recommended.
FORMAT: Lecture 1 hour, Research Lab 2 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, and PSYO 2000.03

PSYO 3084.03: Social Cognition.
This course focuses on the understanding people develop of themselves and others as social beings. The contributions of evolution, historical, and cultural factors are considered. The ways in which human development of social perception and cognition differs from that of other species are also examined.
FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and one of PSYO 2080.03 or PSYO 2090.03 or PSYO 2220.03

PSYO 3091.03: Methods in Developmental Psychology.
This course provides a survey of research methods in developmental psychology. It assumes knowledge of basic methodology and design, and concentrates on methods of relevance to the study of human development. In addition to lectures, students conduct a number of research exercises to gain experience in conducting research with children.
FORMAT: Lecture 2 hours, Research Lab 1 hour
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, and PSYO 2090.03

PSYO 3092.03: Early Development.
This course examines development in infancy and the preschool period. The main theme of the course is to examine the integration of perceptual, cognitive, emotional, social, and linguistic changes occurring during the first five years of life.
FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and PSYO 2000.03

PSYO 3093.03: Development of Language and Literacy Abilities.
This course examines the cognitive and linguistic processes underlying language acquisition and how they interact in influencing the development of language and literacy abilities.
FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and PSYO 2000.03

PSYO 3122.03: Methods in Experimental Clinical Psychology.
Students learn how to conduct research on topics in applied clinical psychology. Students conduct a series of research projects in the laboratory, by serving both as subjects and experimenters, and analyze the results of these studies in written lab reports. Research studies serve to illustrate concepts discussed in class.
FORMAT: Lecture 2 hours, Research Lab 2 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, and PSYO 2220.03

PSYO 3129.03: Childhood Psychopathology.
The course examines a wide range of mental health disorders in children (e.g., reading disability, autism, ADHD). The goal is to gain a better understanding of nature of these disorders, to learn about evidence-based assessment and treatment, and to review research findings in relation to children's mental health.
FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03; PSYO 2220.03 is recommended

PSYO 3131.03: Research Methods in Attention.
The methods, findings, and theories that underpin our understanding of attention, perception, selection, and control of information processing are covered. Behavioral and neuroscientific evidence as well as computational models are examined in the lectures. Laboratories emphasize behavioral methods used to isolate and reveal the components of attention.
FORMAT: Lecture 3 hours, Research Lab 2 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, and PSYO/NESC 2150.03 or PSYO/NESC 2130.03
CROSS-LISTING: NESC 3131.03
EXCLUSION: PSYO/NESC 3130.06

PSYO 3132.03: Research Methods in Visual Cognition.
Visual cognition is the study of how we extract meaning from our visual environment and use it to direct our behavior. Emphasis is placed on object, face, and word recognition as revealed by normal behavior, and by neuropsychological techniques and neuropsychological studies of brain-damaged individuals who have lost these recognition abilities.
FORMAT: Lecture 3 hours, Research Lab 2 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, and PSYO/NESC 2130.03 or PSYO/NESC 2150.03
CROSS-LISTING: NESC 3132.03
EXCLUSION: PSYO/NESC 3130.06

PSYO 3133.03: Research Methods in Memory.
The course examines human memory from the perspective of cognitive psychology and, to a lesser extent, cognitive neuroscience. Lectures emphasize cognitive approaches to the study of memory with an explicit focus on empirical research methods, data, and interpretation of results.
FORMAT: Lecture 3 hours, Research Lab 2 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, and PSYO/NESC 2150.03 or PSYO/NESC 2130.03
CROSS-LISTING: NESC 3133.03
EXCLUSION: PSYO/NESC 3130.06

PSYO 3134.03: Research Methods in Psycholinguistics.
Provides hands-on experience with various methodologies employed in the study of language processing, and uses these to explore topics in psycholinguistics in greater depth. Methods covered may include reaction time, priming, self-paced reading, computational modeling, corpus-based research, and event-related brain potentials. Students serve as experimenters and participate in class experiments.
FORMAT: Lecture 3 hours, Research Lab 2 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, and PSYO/NESC 2150.03 or PSYO/NESC 2130.03
CROSS-LISTING: NESC 3134.03
EXCLUSION: PSYO/NESC 3130.06

PSYO 3137.03: Research Methods in Cognitive Neuroscience.
An overview of neuroimaging and other techniques of cognitive neuroscience (including fMRI, ERP, and others) focusing on how they work, how they are applied, and their inherent limitations. Labs include experience collecting and analyzing ERP data, demonstrations of fMRI scanning, and analysis of fMRI data.
FORMAT: Lecture 3 hours, Research Lab 2 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2080.03, and PSYO/NESC 2150.03 or PSYO/NESC 2130.03
CROSS-LISTING: NESC 3137.03

PSYO 3161.03: Measuring Behaviour.
Measuring behaviour is essential in the study of ethology, behavioral neuroscience, developmental, social and clinical psychology. The function of this laboratory course is to teach methods of observing and scoring behaviour using...
This course focuses on advanced theories and applications of animal behaviour, with a focus on proximate, integrative, and applied questions. It offers a more in-depth analysis of topics covered in PSYO/NESC 2160.03 and explores trends and issues in contemporary ethology, animal psychology and behavioural ecology. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2220.03 or PSYO/NESC 2030.03, 2060.03
CROSS-LISTING: NESC 3162.03

PSYO 3165.03: Neuroethology.
Neuroethology explores how neural systems of animals work together to produce behaviour. Neural control of selected behaviours from a wide range of animals, both invertebrates and vertebrates, are examined. From this comparative perspective an attempt is made to tease out common themes in the physiological control of behaviour. NOTE: All experiments in the accompanying lab involve insects. Students are required to handle insects during the lab. FORMAT: Lecture 2 hours, Research Lab 2 hours
PREREQUISITE: PSYO/NESC 2470.03 or BIOL 2020.03, and PSYO/NESC 2570.03 or BIOX 3070.03 and 3070.03, or MATH 3070.03 and 3070.03; and PSYO 2000.03 or NESC 2007.03 or one of following Biology classes: 2003.03, 2004.03, 2020.03 2005.03 2060.03
CROSS-LISTING: NESC 3165.03

PSYO 3170.03: Hormones and Behaviour.
How chemical signals of the endocrine, and immune systems interact to influence the brain and behaviour. How neurotransmitters, cytokines, and hormones control neural and behavioural development, sexual, aggressive, and maternal behaviour. Hormone receptors in the brain, reproduction, puberty, brain sex differences, and stress are also examined. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO/NESC 2470.03 or BIOL 2020.03, and (PSYO/NESC 2770.03 or BIOX 3070.03 and 3070.03, or MATH 3070.03 and 3070.03; and PSYO 2000.03 or NESC 2007.03 or one of following Biology classes: 2003.03, 2004.03, 2020.03 2005.03 2060.03)
CROSS-LISTING: NESC 3170.03

PSYO 3180.03: Psychoneuroimmunology/Ecological Immunology.
Our behaviour can influence how well we resist disease, and infection can alter behaviour. This course examines how immune systems and nervous systems interact in both vertebrates and invertebrates. Evolutionary forces that have led to the co-existence of these interactions are also examined. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO/NESC 2470.03 or BIOL 2020.03, and either PSYO/NESC 2770.03 or PSYO 2000.03 or NESC 2007.03 and either PSYO/NESC 2770.03 or BIOX 3070.03 and 3070.03, or MATH 3070.03 and 3070.03; and PSYO 2000.03 or NESC 2007.03 or (BIOX 3070.03, BIOX 3070.03, BIOX 3070.03, BIOX 3070.03); and PSYO 2000.03 or NESC 2007.03 or one of following Biology classes: 2003.03, 2004.03, 2020.03 2005.03 2060.03
CROSS-LISTING: NESC 3180.03

PSYO 3190.03: Psycholinguistics.
Explores the cognitive and neural bases of human language processing. Topics include: human language and other communication systems; phonology, morphology; semantics; syntax; discourse; first and second language acquisition; relationship of language to general cognitive functions such as music and mathematics; signal languages such as American Sign Language; and non-linguistic gesture. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and either PSYO/NESC 2770.03 or PSYO 2470.03 or MRCI 2100.03; OR BIOX 2020.03
CROSS-LISTING: NESC 3190.03

PSYO 3200.03: Clinical Psychology.
A survey of professional issues relevant to the practice of clinical psychology in hospitals, private practice, schools, the court system, and the community. Students gain knowledge about psychological services, and an understanding of the training, ethics, and expertise that clinical psychology brings to the delivery of mental health and healthcare. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and PSYO 2220.03
EXCLUSION: PSYO 2120.03

PSYO 3224.03: Forensic Psychology.
This course provides an introduction to the application of psychology to the justice arena of the criminal justice system (i.e., courts, corrections, policing). In addition, consideration is given to professional and ethical issues that arise when psychological knowledge is applied in forensic contexts. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 1011.03 or PSYO 1021.03 and PSYO 1012.03 or PSYO 1022.03, or SCIE 1515.V1.36, 1520.V1.35 or 1540.V1.27 (with a grade of B- or better), AND any 2000-level Psychology class.

PSYO 3225.03: Health Psychology.
A study of psychological influences on how people stay healthy and how they respond when they become ill. Using a biopsychosocial model, this course examines topics such as health behaviours and prevention, stress and coping, the patient in treatment settings, and management of chronic and terminal illness. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and PSYO 2220.03

PSYO 3227.03: Principles of Human Neuropsychology.
Clinical neuropsychologists study the organization of cognitive, emotional, and social functions in the brain to understand how brain damage alters human behaviour across the lifespan. We examine how clinicians diagnose and rehabilitate persons with brain diseases and disorders. Assignments emphasize application of textbook/literature-based knowledge, critical thinking, and group presentation skills. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and one of PSYO/NESC 2170.03, 2470.03, or PSYO 2770.03. PSYO/NESC 2130.03 is helpful.
CROSS-LISTING: NESC 3227.03

PSYO 3237.03: Drugs and Behaviour.
An introduction to behavioral pharmacology. The lectures involve basic anatomy, physiology, and chemistry of the nervous system. Behavioural effects and underlying mechanisms of various psychoactive drugs are discussed. Specific topics covered are alcohol, tobacco, amphetamines, cocaine, opioids, hallucinogens, tranquilizers, and antipsychotic drugs. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and one of PSYO/NESC 2170.03, 2470.03, 2570.03, or PSYO 2770.03
CROSS-LISTING: NESC 3237.03

PSYO 3260.03: Biological Rhythms.
Daily (circadian) clock genes rhythm in many functions, including sleep, reproduction, and intellectual performance. This course examines the nature of these biological clocks, their neural mechanisms, and their role in regulating sleep and other aspects of physiology and in pathological conditions, including sleep disorders, jet lag, and psychiatric disorders. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03 or (BIOL 1010.03 or BIOL 1021.03) and any 2000-level Psychology class.
CROSS-LISTING: NESC 3260.03

PSYO 3264.03: The Science of Sleep.
This course reviews the history, methods and results of the scientific study of sleep. Topics include: circadian and homeostatic regulation; developmental and cultural impact; normative and abnormal function of neural and other control mechanisms; effects of sleep loss on performance and health; theories of the functions of sleep. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and either PSYO/NESC 2170.03 or PSYO/NESC 2470.03, or BIOX 2020.03
CROSS-LISTING: NESC 3264.03

PSYO 3270.03: Developmental Neuroscience.
This course presents the fundamentals of development in complex and simple nervous systems. Cell differentiation, pattern regulation, proliferation, migration, and circuit development are discussed. Special attention is given to later developmental events such as neuronal growth cones, cell death, growth factors, neuron-target interactions, and synaptic formation. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and PSYO 2220.03
EXCLUSION: PSYO 2120.03

PSYO 3280.03: Neuroscience in Mental Health.
This course examines the fundamentals of development in complex and simple nervous systems. Cell differentiation, pattern regulation, proliferation, migration, and circuit development are discussed. Special attention is given to later developmental events such as neuronal growth cones, cell death, growth factors, neuron-target interactions, and synaptic formation. FORMAT: Lecture 3 hours
PREREQUISITE: PSYO 2000.03 or NESC 2007.03.

574 Psychology
PSYO 3280.03: Personality.
Personality deals with questions such as: Is a science of persons possible? Are there types of personalities, or is each individual's personality unique? Is an individual's life history an expression of his or her personality, or is personality description merely a summary statement of behaviour whose cause lies elsewhere?

FORMAT: Lecture 3 hours, Lab 3-4 hours, and one of PSYO 2080.03 or PSYO 2220.03 and PSYO 2570.03 or PSYO/NESC 3270.03

CROSS-LISTING: NESC 3270.03

PSYO 3370.03: Neuroscience Laboratory I.
Introduction to several neurophysiological techniques used in contemporary neuroscience, employing extracellular and intracellular electrical recording and stimulation methods on nervous system preparations, both sensory and motor. After introductory instruction, students in groups of 2-3 get to perform quite sophisticated practical experiments themselves, enabled by computer-based data acquisition systems.

FORMAT: Lab 3 hours

PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2570.03 and PSYO/NESC 3270.03

CROSS-LISTING: NESC 3370.03

PSYO 3371.03: Neuroscience Laboratory II.
Introduction to several techniques used in contemporary neuroscience. Students work under supervision in groups of 2-3 in regular labs that introduce neuropeptidological analyses using the following: Golgi impregnation, immunocytochemistry, dye-tracing of connections, electrophysiology of the retina, and neurotransmitter determinations using HPLC.

FORMAT: Lab 3 hours

PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2570.03 and PSYO/NESC 3270.03

CROSS-LISTING: NESC 3371.03

PSYO 3390.03: Cognitive Development.
In this course we trace the development of the child's knowledge from birth to adolescence. Piaget's theory provides the background for the study of recent progress in our understanding of children's concepts of the physical world.

FORMAT: Lecture 3 hours

PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and PSYO 2090.03

PSYO 3502.03: Statistical Methods II.
This course is the continuation of PSYO 2501.03, with the examination of more complex, but commonly used, inferential statistics. Topics include factorial ANOVA, ANCOVA, MANOVA, and multiple regression. This course is intended primarily for Honours students in Psychology or Neuroscience. Class work includes computer-based assignments.

FORMAT: Lecture 3 hours, Skills Lab 1-2 hours

PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2501.03 or STAT 2100.03, and instructor's consent

PSYO 3581.03: History of Psychology I.
Drawing on writings from antiquity to the early years of the 20th century, we explore the nature of historical explanation, explanation in science, knowledge and truth, life, human nature, the domains of animal and man, neuroscience, and personality. Usually offered in the Fall term.

FORMAT: Lecture 3 hours

PREREQUISITE: PSYO 2000.03 or Instructor's consent

EXCLUSION: PSYO 3580.06

PSYO 3582.03: History of Psychology II.
Drawing on writings from antiquity to the early years of the 20th century, we explore the nature of learning, thinking, memory, intelligence, mental illness and treatment, unconscious, dreams, development, and the self. Usually offered in the Winter term. Familiarity with ideas developed in PSYO 3581 is helpful.

FORMAT: Lecture 3 hours

PREREQUISITE: PSYO 2000.03 or instructor's consent

EXCLUSION: PSYO 3580.06

PSYO 3670.03: Genes, Brain and Behaviour.
The application of genetic techniques to the study of cognitive abilities, psychopathology, personality disorders, stress-related illnesses, and ethical issues in genetic research. The role of genetic factors in eating and drug abuse problems, as well as methods used to study gene-environment interactions are explored.

FORMAT: Lecture 3 hours

PREREQUISITE: PSYO 2470.03 or PSYO 2770.03, and BIOL 1010.03 or BIOL 1020.01 and BIOL 1011.03 or BIOL 1021.01 or SCIE 1515.X/Y36, or PSYO 2770.03, or PSYO 2870.X/Y (with a grade of B- or better); BIOL 2014.03 are useful

CROSS-LISTING: NESC 3670.03

EXCLUSION: PSYO/NESC 2470.03 or PSYO 2770.03

CROSS-LISTING: PSYO 3770.03

PSYO 3770.03: Behavioural Neuroscience.
Behavioral neuroscientists examine the neuronal and hormonal mechanisms underlying a variety of behavioral phenomena. The course focuses on neural correlates of social and emotional behavior, motor behavior and patterns, and behavioral teletyping processes (motoric and endocrine disruptions).

FORMAT: Lecture 2 hours

PREREQUISITE: PSYO 2000.03 or NESC 2007.03, and PSYO/NESC 2470.03 or PSYO 2770.03

CROSS-LISTING: NESC 3770.03

PSYO 3775.03: Behavioural Neuroscience Laboratory.
Students motivated to pursue a career in Neuroscience, or in a related biomedical discipline, gain direct experience studying the nervous system in relation to behavior. Students acquire skills in animal handling, ethics, and measuring behavior. Emphasis is placed on histological/molecular analysis of the brain including examining protein and/or mRNA levels.

SIGNATURE REQUIRED

FORMAT: Research Lab 3-5 hours

PREREQUISITE: PSYO 2000.03 or NESC 2007.03, PSYO 2570.03 or PSYO/NESC 2470.03 or PSYO 2770.03, or one of PSYO/NESC 2160.03 or PSYO/NESC 2570.03, and instructor's consent

CROSS-LISTING: NESC 3775.03

PSYO 3790.03: Neurolinguistics.
The course covers: (1) brain damage and language disorders; (2) aphasia; (3) localization of lesions in the human brain; (4) neuromapping; (5) intracranial electric stimulation experiments; (6) event-related brain potential experiments; (7) PET, fNMR scan experiments; (8) neural models of language processing.

FORMAT: Lecture 2 hours

PREREQUISITE: PSYO 2470.03 or PSYO 2770.03 and PSYO/NESC 2160.03

CROSS-LISTING: NESC 3790.03

PSYO 3970.03: Molecular Neuroscience.
This course examines the development, function, and pathology of the brain at the molecular level. Model systems are examined from the perspective of ion channels, messengers, receptors, intracellular signalling cascades, transcription factors, and genes. The concepts underlying basic cellular and molecular neuroscience tools are emphasized.

FORMAT: Lecture 3 hours

PREREQUISITE: PSYO/NESC 2470.03 or PSYO/NESC 3770.03

CROSS-LISTING: NESC 3970.03

400-Level Seminars
The following seminars are intended for fourth-year Honours students. Third-year Honours students are eligible if they obtain permission from the instructor, and the needs of all the fourth-year Honours students have been met. The topics covered in these courses vary from year to year. Go to the departmental website (http://psychology.ualberta.ca) for more detail about the topics to be covered in the current academic year.

PSYO 4000.03: Senior Seminar.
An individually tailored reading or study course designed to allow Honours students to focus on a particular issue, or a set of related issues, that are not part of the regular program. Enrolment is contingent upon securing a faculty member to supervise the study program.

SIGNATURE REQUIRED

COORDINATOR: J. Stamp

CROSS-LISTING: NESC 4000.03

PSYO 4001.03: Contemporary Issues in Psychology.
SIGNATURE REQUIRED

FORMAT: Seminar 3 hours
PSYO 4040.03: Learning Applications in Clinical and Social Psychology.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours

PSYO 4050.03: Topics in Perception.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours
PREREQUISITE: PSYO/NESC 3051.03
CROSS-LISTING: NESC 4050.03

PSYO 4080.03: Topics in Social Psychology and Personality.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours

PSYO 4090.03: Development of Social Behaviour.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours

PSYO 4092.03: Topics in Developmental Psychology.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours

PSYO 4120.03: Topics in Clinical Psychology.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours

PSYO 4130.03: Topics in Human Information Processing.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours
CROSS-LISTING: NESC 4130.03

PSYO 4140.03: Animal Learning Topics.
SIGNATURE REQUIRED
NOTE: PSYO/NESC 2470.03 recommended
FORMAT: Seminar 2 hours
CROSS-LISTING: NESC 4140.03

PSYO 4160.03: Topics in Behavioural Biology.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours
CROSS-LISTING: NESC 4160.03

PSYO 4170.03: Topics in Behavioural Neuroendocrinology.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours
CROSS-LISTING: NESC 4170.03
RESTRICTION: Restricted to PSYO/NESC Honours Students

PSYO 4224.03: Topics in Forensic Psychology.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours
RESTRICTION: Restricted to Psychology Honours students

PSYO 4230.03: Human Performance Topics.
SIGNATURE REQUIRED
FORMAT: Seminar 2 hours
CROSS-LISTING: NESC 4230.03

PSYO 4740.03: Topics in the Neurobiology of Learning and Memory.
SIGNATURE REQUIRED
PREREQUISITE: PSYO/NESC 2470.03, PSYO/NESC 2140.03
CROSS-LISTING: NESC 4740.03

PSYO 4500X/Y.06: Honours Thesis.
Under a staff member’s supervision, each student conducts original research in experimental psychology. Students must describe their proposed research and progress. A formal written report of the completed research is required. The final grade is based on originality and skill with emphasis on the written and oral reports.
SIGNATURE REQUIRED
NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.
PREREQUISITE: Fourth-year Honours students, and instructor’s consent
CROSS-LISTING: NESC 4500X/Y.06
RESTRICTION: Restricted to Honours students in their graduating year
Science, Interdisciplinary

Dean
Moore, C., BA (Hons), PhD (Cambridge), Professor (Psychology)

I. Course Descriptions

SCIE 1111.03: Writing for the Sciences.
This course satisfies the Faculty of Science Writing Requirement. The course covers the history of writing and information theory, grammar and punctuation, sentences and paragraphs, scientific style, proposals, the scientific paper, citations and references, graphics, posters, and ethics. Weekly assignments/optional develop and reinforce writing skills introduced in lectures.

FORMAT: Writing requirement for Faculty of Science BSc students only. Lecture 3 hours/tutorial 1 hour (mandatory)

SCIE 1505X/Y.18: Integrated Science.
This program provides comprehensive first-year preparation for science major or honors degree and includes a full-year writing course and research project in the sciences. Concepts and techniques taught in Biology, Earth Science, Psychology, and Statistics are linked to material taught in separate Chemistry, Mathematics, and Physics courses.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Writing requirement; Lecture approx. 9 hours/lab and other activities approx. 5 hours

CROSS-LISTING: BIOL 1010.03/1011.03 or BIOL 1020.03/1021.03; ERTH 1000.03, PSYO 1011.03/1012.03 or PSYO1021.03/1022.03; SCIE 1111.03; STAT 1060.03

SCIE 2000X/Y.06: Introduction to the History of Science.
This course is a broad introductory survey of the central developments in the history of science, open to first and higher level students whatever their fields, and may be an introduction to further study in the history of science. It examines the most revolutionary figures from the Greeks to the modern period. The work of each of these had such a profound influence upon their own era and upon subsequent times that students in the humanities will find this course clarifies the nature of science and its cultural importance. Students in the course may be taken as an arts or science credit.

NOTE: Credit can only be given for this course if X and Y are completed in consecutive terms and partial credit cannot be given for a single term.

FORMAT: Lecture/tutorial

SCIE 2111.03: Communicating Science.
A course for senior science students to hone communication skills. Students (1) learn to communicate scientific information to various non-specialist audiences, and (2) prepare and deliver tutorials to small groups of SCIE 1111.03 students. The course allows students to use different communication styles and topics to build a portfolio.

FORMAT: Lecture 3 hours, tutorial 2 hours

SCIE 3600.03: Exploring Geographic Information Systems.
This course provides a general overview of Geographic Information Systems (GIS), examining what GIS is, what it can do, and how it works. The course is aimed at students studying in all disciplines and will involve creating, understanding, manipulating and displaying geographic data. Topics will include data models, analysis of vector and raster data, creation of spatial databases, the Global Positioning System and other aspects of spatial data. Lectures (7 per week) will explore basic aspects of GIS in detail and introduce material to be covered in the labs. Labs are held once per week and will provide practical experience in data manipulation and problem solving.

PREREQUISITE: Two years of university study

EXCLUSION: ERTH 3500.03, ENVS 3500.03, GEOG 3500.03, ERTH 5600.03

SCIE 4001.03: History of Marine Sciences.
Onedisc not take desirable form until late in the 19th century. Its roots lie not in the Challenger Expedition of the 1870s, the popular stereotype, but partly in ancient cosmologies and geography. In this course, the history of marine sciences, including oceanography, is traced from the ancient to the 20th century. The cosmologies of the ancient world, voyages of discovery from the 15th through the 18th centuries, the scientific revolution of the 17th century, the development of biology, physics, chemistry and geology in the late 18th and 19th centuries, all contributed to a gradual enlargement and transformation of human interest in the oceans.

FORMAT: Lecture 3 hours

PREREQUISITE: Instructor’s consent

CROSS-LISTING: BIOL 4444.03, OCEA 4331.03/4332.03, HIST 3073.03, HIST 3331.03, MEB 4664.03

SCIE 4444.03: Leadership in Science.
Students will develop leadership skills and build confidence while applying their scientific knowledge. Through in-class activities and a science-based practicum, students gain experience with various aspects of leadership, allowing for integration and application of their expertise.

FORMAT: Lecture/tutorial 2.5 hr/week; Practicum, 3hr/week

PREREQUISITE: Instructor’s consent

CROSS-LISTING: BIOL 4444.03

SCIE 2800.00: Science Co-op Seminar Orientation.
This course is designed to introduce Science Co-op students to aspects of career development and preparation for their work terms. This course is a prerequisite to the first work term and is a mandatory component of the Science Co-operative Education program; all Science Co-operative Education students are required to complete this course at least four months prior to the first workterm. A grade of Pass is required before students undertake the first work term experience.

FORMAT: This course is delivered primarily on-line with two mandatory in-person seminars.
I. Degree Programs

Statistics is the discipline which is concerned with the collection, organization, display and interpretation of data. Statisticians are in high demand in government, industry and in research institutions.

There are several honours programs, and a 20 Credit Major program in Statistics available to students. In addition, there is a Co-op program. Any student interested in such a course of study should consult the Undergraduate Advisor for Statistics, Department of Mathematics and Statistics.

In addition to the departmental requirements listed below, students must satisfy the requirements outlined in the Degree Requirements section, page 125 of this calendar.

A. Honours in Statistics

The Honours program in Statistics will provide students with a comprehensive knowledge of both theoretical and applied statistics and will enable students to move easily into challenging employment or graduate work in statistics.

Departmental Requirements

1000 level
• MATH 1000.03 or MATH 1215.03/1010.03
• STAT 1060.03*
• CSCI 1100.03/1101.03**

2000 level
• MATH 2001.03
• MATH 2002.03
• MATH 2010.03/2040.03 or 2135.03
• STAT 2060.03
• STAT 2080.03***
• Two to five other half credits in Statistics at or above the 2000 level but not including courses listed below.

3000 level
• STAT 3340.03
• STAT 3350.03
• STAT 3360.03
• STAT 3380.03 or 3350.03
• STAT 3460.03
• Two 3000 level Mathematics courses chosen in consultation with the statistics honors advisor.

4000 level
• STAT 4066.03
• One of STAT 4350.03, 4390.03, 4620.03
• STAT 4950.03

B. Combined Honours

Students interested in taking honours in Statistics combined with another subject should consult the Faculty Advisor through whom a suitable course of study can be arranged.

C. BSc or BA (20 credit) Major in Statistics

Departmental Requirements

1000 level
• MATH 1000.03/1010.03
• STAT 1060.03*
• CSCI 1100.03/1101.03**

2000 level
• MATH 2001.03
• MATH 2002.03
• MATH 2010.03/2040.03 or 2135.03
• STAT 2060.03
• STAT 2080.03

3000 level
• STAT 3340.03
• STAT 3360.03
• STAT 3380.03 or 3350.03
• STAT 3460.03
• At least two more credits in Statistics at or above the 3000 level

* At least two more credits in Statistics at or above the 3000 level
D. Co-op Education in Science
Co-operative Education in Science (Science Co-op) is a program where academic study is combined with paid career related work experience. Students alternate three work terms throughout their academic study terms and graduate with a Bachelor of Science Co-op. Science Co-op enables students to apply their knowledge directly while providing them with work experience that assists in making educated career choices. Students apply to join Science Co-op before their second year of study. If accepted into the Science Co-op program, students are required to register for and attend the Science Co-op Seminar Series (SCIE 2800.00) in the fall term of the year they join.

The scheduling of Science Co-op work terms must be taken into account in planning course selection. Consult with the Statistics Co-op Academic Advisor for your work term sequence. See the “Co-operative Education in Science” section of this calendar, or [http://www.sciencecoop.dal.ca](http://www.sciencecoop.dal.ca) for information on Science Co-op such as ScholarCo-op requirements, eligibility, how to apply, deadlines and other related information.

For further information, please see [http://www.sciencecoop.dal.ca](http://www.sciencecoop.dal.ca)

Co-op Academic Advisor in Statistics:
Dr. Dowel (904-106) mdowell@dal.ca

E. Honours Co-op in Statistics

Departmental Requirements
Same as for the regular Honours in Statistics as above with the addition of the following:
• Three Co-op Work Terms: STAT 8800.00, 8802.00, 8805.00

F. Major Co-op in Statistics

Departmental Requirements
Same as for the regular Major in Statistics with the addition of the following:
• Three Co-op Work Terms: STAT 8800.00, 8802.00, 8805.00
• Co-op Seminar: SCIE 2800.00

More details on the Co-op program appear under the Co-operative Education in Science entry in this calendar.

G. BSc (15 credit) with Minor in Statistics

A BSc (15 credit) degree program with a Minor in Statistics is available to students in the Faculty of Science.

Departmental Requirements
• A minimum of 18 credit hours in Statistics (STAT) courses at the 2000 level or higher.
• Students in Major/Honours programs other than Mathematics may count MATH 2001 and MATH 2003 among the 18 credit hours.

H. Minor in Statistics

Students in other 20 credit degree programs may choose to include a Minor in Statistics in their program. Requirements are outlined in the College of Arts and Science Minors section of this Calendar (page 140).

I. Minors available to students in Statistics

Minor programs allow students to develop subject specializations in addition to their major or honours subjects. Minors in other subjects are normally added to a four-year major or concentrated honours program (including co-op programs).

Students in a 20-credit BSc program in Statistics may choose to include a Minor selected from the list of approved Minors beginning on page 132 in this Calendar. Note that courses counted toward a Major or Honours program cannot be used to fulfill the requirements of a Minor program.

J. BSc/Engineering or BA/Engineering Concurrent Programs

Students will normally complete the requirements for a 15 Credit BSc or 15 Credit BA, and the first two years of engineering studies leading to the Diploma in Engineering. The concurrent program can be completed in three years. Details are provided in the College of Arts and Science Degree Requirements on page 122 of the calendar.

K. Diplomas, Certificates, and Language Proficiency Certificates

In combination with a BSc or BA there are certificates or diplomas that can be obtained to emphasize areas of proficiency. Courses counted toward a Major, Honours or Minor program may also be used to fulfill the requirements of a Certificate. For a complete list and details refer to the College of Arts and Science Degree Requirements on page 122 of the calendar.

II. Course Descriptions

Certain courses have been approved for use in fulfilling the educational requirements of the Associate Statistician (A.Stat.) designation of the Statistical Society of Canada (SSC). See the Department or the SSC website (http://www.statcan.ca/en/accreditation) for details.

Credit may not be obtained twice for the same course even if the numbers have been changed.

**STAT 1060.03: Introductory Statistics for Science and Health Sciences.**

This course gives an introduction to the basic concepts of statistics through extensive use of examples. The topics include experimental design, descriptive statistics, simple linear regression and the basics of statistical inference. Students will learn to use the statistical package MINITAB. NOTE: Students who have already taken university level Calculus should consider taking STAT 2060.03 instead of STAT 1060.03.

**FORMAT:** Lecture 3 hours, tutorial 1 hour, MLA.

**PREREQUISITE:** Academic or advanced Grade 12 Mathematics (or pre-calculus) or equivalent.

**CROSS-LISTING:** MATH 1003.00

**EXCLUSION:** COMM 2501.03, MGMT 2501.03, DISP.

**STAT 2060.03:** Introduction to Probability and Statistics.

Rigorous introduction to probability and statistical theory. Topics covered include elementary probability, random variables, distributions, estimation and hypothesis testing. Estimation and testing are introduced using normal likelihood and the generalized likelihood ratio. Natural sequels for this course are STAT 2080.03 and 3160.03.

**FORMAT:** Lecture 3 hours, MLA.

**PREREQUISITE:** MATH 1000.03 or MATH 1010.03 or equivalent.

**CROSS-LISTING:** MATH 2060.03, ECON 2200.03.

**EXCLUSION:** ECON 2202.03.

**STAT 2080.03:** Statistical Methods for Data Analysis and Inference.

The usual sequel to STAT 1060.03 or STAT 2060.03. This course introduces a number of techniques for data analysis and inference commonly used in the experimental sciences. Topics covered include model building in linear models, multiple regression, analysis of variance, factorial designs, analysis of covariance using the general techniques for linear models and two and three way tables along with logistic regression. A natural sequel for this course is STAT 3340.03.

**FORMAT:** Lecture 3 hours, MLA.

---

**Statistics 579**

---

---
STAT 2300.03: Introduction to Mathematical Modelling I.

See course description for MATH 2300.03 in the Mathematics section of this calendar.

PREREQUISITE: STAT 1060.03 or STAT 2060.03 or DISP (except SCIE 1540X/Y.27)
CROSS-LISTING: MATH 2300.03 or DISP
EXCLUSION: COMM 2302.03, MKOM 2302.03, PSYS 2301.03

STAT 2600.03: Theory of Interest.

See course description for MATH 2600.03 in the Mathematics section of this calendar.

This course provides an intermediate level coverage of statistical theory to provide

CROSS-LISTING: MATH 3380.03
PREREQUISITE: STAT 2060.03
FORMA T: Lecture 3 hours

natural and physical sciences.

The development of design and analysis techniques for sample surveys. Topics
to be discussed include survivorship and hazard functions and their
statistical theory behind the methods, and the application of various techniques.
This course is an introduction to survival analysis methods and will cover both the

CROSS-LISTING: MATH 3360.03
PREREQUISITE: STAT 2060.03 or DISP (except SCIE 1540.03)
FORMA T: Lecture 3 hours

STAT 3345.03: Environmental Risk Assessment.

Statistical methods for assessing risk are discussed, including dose-response
models, survival analysis, relative risk analysis, bioassay, estimating methods for
zero risk trend analysis and association risks. Case studies are used to illustrate the
methods.

PREREQUISITE: MATH 1060.03 or MATH 1215.03, STAT 2060.03 or equivalent

STAT 3350.03: Design of Experiments.

The aim of the course is to develop the fundamental statistical concepts required
for designing efficient experiments to answer real questions. The first main
subject is experimental design. The basic concepts of replication, blocking and
randomization are each examined. The second main subject is treatment
structure. The ideas of factorial designs, split-plot and incomplete
plot designs are presented. We conclude with a look at response surface
methodology.

PREREQUISITE: STAT 2060.03, MATH 2010.03 and either MATH 1010.03 or
STAT 2060.03 or DISP (except SCIE 1540.03/27)

CROSS-LISTING: MATH 3340.03

STAT 3360.03: Probability.

The concepts and application of probability. Topics include the classical discrete and
continuous distributions, including the binomial, hypergeometric, multinomial, Poisson,
beta, gamma, t, normal and several; definitions and properties of
random variables; independence; sums of independent random variables,
including the law of large numbers and central limit theorem; conditional
probability; and the bivariate normal distribution. Examples will be taken from the
natural and physical sciences.

PREREQUISITE: STAT 2060.03 and MATH 2001.03
FORMA T: Lecture 3 hours

CROSS-LISTING: MATH 3360.03

STAT 3380.03: Sample Survey Methods.

The development of design and analysis techniques for sample surveys. Topics
include simple, stratified and systematic random sampling, ratio and regression
estimation, sub-sampling with units of equal and unequal size, double-random
and multiphase sampling, non-sample errors and non-respondents.

PREREQUISITE: STAT 2060.03
FORMA T: Lecture 3 hours

CROSS-LISTING: MATH 3380.03

STAT 3460.03: Intermediate Statistical Theory.

This course provides an intermediate level coverage of statistical theory to provide
a framework for valid inferences from sample data. The methods developed are
based on the likelihood function and are discussed from the frequentist,
likelihood, and Bayesian approaches. The problems of point estimation, interval
estimation and hypothesis testing and the related topics of sampling distributions,
sufficiency, and Fisher Information are discussed.

PREREQUISITE: STAT 3360.03
FORMA T: Lecture 3 hours

CROSS-LISTING: MATH 3460.03

STAT 3703.03: Actuarial Models I.

This course builds on the material in STAT 3360 to develop the theoretical basis
for construction and evaluation of actuarial models. Topics covered include survival
models, probability distributions, dependencies and limits, and aggregate loss
models, with application to insurance.

CROSS-LISTING: ACSC 3703.03
EXCLUSION: STAT 4701.03

STAT 3720.03: Life Contingencies I.

This course introduces the student to the mathematical models for valuation of life
contingencies (e.g. life insurance policies). The course covers both the statistical
aspects of modelling survival data, and the financial aspects of valuing uncertain
future cash-flows.

PREREQUISITE: STAT 3360.03, STAT 2060.03
CROSS-LISTING: ACSC 3720.03

STAT 3750.03: Credibility Theory.

Credibility theory deals with the difficulty in combining information from two
samples, one of which is small but relevant, the other is large but less relevant. In
this course, we will study different approaches to dealing with this problem.

CROSS-LISTING: ACSC 3750.03
CO-REQUEST: STAT 3760.03

STAT 4001.03: AARMS Summer School I.

A Topics class given by leading researchers in the precise field, which varies from
year to year. Consult the Department for current details.

FORMA T: Lecture

PREREQUISITE: Permission of the Honours Advisor
CROSS-LISTING: MATH 4001.03

STAT 4002.03: AARMS Summer School II.

A Topics class given by leading researchers in the precise field, which varies from
year to year. Consult the Department for current details.

FORMA T: Lecture

PREREQUISITE: Permission of the Honours Advisor
CROSS-LISTING: MATH 4002.03

STAT 4066.03: Advanced Statistical Theory I.

This course, together with STAT 4007.03 provides a solid basis in the theory of
statistical inference. After a review of some probability and distribution theory,
the Frequentist and classical theories of estimation and testing are introduced.

PREREQUISITE: STAT 3360.03 or instructor's consent
CROSS-LISTING: MATH 4066.03/5066.03, STAT 4066.03

STAT 4070.03: Multivariate Distributions.

A Topics class given by leading researchers in the precise field, which varies from
year to year. Consult the Department for current details.

FORMA T: Lecture

PREREQUISITE: STAT 4066.03 or instructor's consent
CROSS-LISTING: MATH 4070.03/5070.03, STAT 4070.03

STAT 4090.03: Probability.

The theory of probability in Euclidean space. Topics include measure and
integration, probability measures, the definitions and properties of random
variables and distribution functions, convergence concepts, Bernstein polynomials,
characteristic functions and central limit theorems, conditional probability and expectation.

FORMA T: Lecture 3 hours

PREREQUISITE: STAT 3460.03 or instructor's consent
CROSS-LISTING: MATH 4090.03/5090.03, STAT 4090.03

STAT 4100.03: Survival Analysis.

This course is an introduction to survival analysis and will cover both the
statistical theory behind the methods, and the application of various techniques.
Topics to be discussed include survival risk and hazard functions and their
relationship to lifetime distributions and densities; modes of censoring; the
Kaplan-Meier estimate of the survivor function; parametric survival time
distributions; proportional hazard models and their semi-parametric estimation;
accelerated life models, log rank tests, including the Mantel-Haenszel test; and
goodness of fit measures.

**FORMAT**
- Lecture 3 hours

**PREREQUISITE:** STAT 3340.03 and STAT 3460.03, or equivalent

**CROSS-LISTING:** STAT 5100.03

**STAT 4210.03: Time Series Analysis in Oceanography and Meteorology.**

The course deals with the stochastic behaviour of several variables in systems where their interdependence is the object of analysis. Greater emphasis is placed on practical application than on mathematical refinement. Topics include classification, cluster analysis, categorical data, analysis of independence, structural simplification by transformation or modeling and hypothesis construction and testing.

**FORMAT**
- Lecture 3 hours

**PREREQUISITE:** STAT 3340.03 and MATH 2135.03 or 2040.03

**CROSS-LISTING:** STAT 5210.03

**STAT 4300.03: Topics in Statistics and Probability.**

Robust statistics are those which provide protection against violation of assumptions underlying the statistical procedure. We will develop basic concepts including sensitivity, influence and breakdown of estimates and tests. Classical procedures will be evaluated in terms of robustness and alternate techniques developed based on weighted least squares and/or median based generalizations. We will also consider robust techniques in time series.

**FORMAT**
- Lecture 3 hours

**PREREQUISITE:** STAT 3340.03 and STAT 3460.03

**CROSS-LISTING:** STAT 5300.03

**STAT 4350.03: Applied Multivariate Analysis.**

Robust statistics are those which provide protection against violation of assumptions underlying the statistical procedure. We will develop basic concepts including sensitivity, influence and breakdown of estimates and tests. Classical procedures will be evaluated in terms of robustness and alternate techniques developed based on weighted least squares and/or median based generalizations. We will also consider robust techniques in time series.

**FORMAT**
- Lecture 3 hours

**PREREQUISITE:** STAT 3340.03 and STAT 3460.03

**CROSS-LISTING:** STAT 5350.03

**STAT 4360.03: Robust Statistics.**

Robust statistics are those which provide protection against violation of assumptions underlying the statistical procedure. We will develop basic concepts including sensitivity, influence and breakdown of estimates and tests. Classical procedures will be evaluated in terms of robustness and alternate techniques developed based on weighted least squares and/or median based generalizations. We will also consider robust techniques in time series.

**FORMAT**
- Lecture 3 hours

**PREREQUISITE:** STAT 3340.03 and STAT 3460.03

**CROSS-LISTING:** STAT 5360.03

**STAT 4370.03: Stochastic Processes.**

Statistical aspects of several ideas in genetics are discussed. Topics of some or all the following: gene frequency estimation, Hardy-Weinberg equilibrium, linkage analysis, association studies, quantitative traits, microarrays.

**FORMAT**
- Lecture 3 hours

**PREREQUISITE:** STAT 3460 or permission of instructor

**CROSS-LISTING:** STAT 5370

**STAT 4703.03: Actuarial Models II.**

This course focuses on the development of statistical methods for the estimation and validation of actuarial models. Topics to be discussed include: methods of estimation, properties of estimators, goodness of fit, credibility theory, survival estimators, measures of risk, estimation of severity and ruin models.

**FORMAT**
- Lecture 3 hours

**PREREQUISITE:** STAT 3460 or STAT 3703.01

**STAT 4720.03: Life Contingencies II.**

The course deals with the stochastic behaviour of several variables in systems where their interdependence is the object of analysis. Greater emphasis is placed on practical application than on mathematical refinement. Topics include classification, cluster analysis, categorical data, analysis of independence, structural simplification by transformation or modeling and hypothesis construction and testing.

**FORMAT**
- Lecture 3 hours

**PREREQUISITE:** STAT 3340.03 and STAT 3460.03

**CROSS-LISTING:** STAT 5390.03

**STAT 4950.03: Honours Research Project.**

This course is required for students in the honours program. It will consist of a research project carried out under the supervision of a faculty member. The results of the research will be submitted to the statistics honours advisor as a written report. Students wishing to enroll in this course must have a suitable background in statistics, and must meet with, and obtain the approval of, the statistics honours co-ordinator before undertaking their project.

**STAT 8892.00: Co-op Work-Term II.**

**STAT 8893.00: Co-op Work-Term III.**

**STAT 8993.00: Co-op Work-Term III.**
Centres and Institutes

A number of centres and institutes for study and research in specific fields are based at the University. These are:

Atlantic Health Promotion Research Centre
Managing Director: Sally Walker, PhD
Scientific Director: Lotte Schaal, PhD
Other: Project Coordinators, Research Associates, Research Assistants, and students
Tel: (902) 494-2240
Fax: (902) 494-3594
Website: http://www.ahprc.dal.ca

The Atlantic Health Promotion Research Centre (AHPRC) is a leading Canadian health promotion research centre based at Dalhousie University. AHPRC was established in 1993 to conduct interdisciplinary, collaborative population health and prevention research that informs policies and programs to improve the health of Canadians.

The centre is conducting research on health services and health systems, healthy eating and physical activity, knowledge translation, prevention of chronic illness and disability, oral health of seniors, youth obesity, aboriginal health, and harm reduction.

The AHPRC is currently supported by the Faculty of Health Professions, Dentistry and the Office of the Vice President Academic and Provost at Dalhousie University. Support for specific research projects comes from agencies such as Canadian Institutes for Health Research, Social Sciences and Humanities Research Council of Canada, Nova Scotia Health Research Foundation, and Heart and Stroke Foundation of Canada.

Our research associates hold appointments in the Faculties of Health Professions, Architecture, Management, Medicine, Dentistry and Science.

Atlantic Institute of Criminology
Director: D.H. Clairmont, BA, MA, PhD

The Atlantic Institute of Criminology (AIC) is a research institute that is heavily policy-oriented in the field of crime and the criminal justice system. Its mandate is to foster the exchange of information among researchers and policy makers in these areas. Consultative services are provided to fellow scholars and researchers, including graduate students and visiting professors, with respect to the planning and execution of research projects and related undertakings. The AIC is an entry that itself conducts extensive research in criminology, especially with respect to policing, the administration of justice, youth justice issues, race, ethnic and equity issues in justice. It has produced a significant body of policy-oriented research on Aboriginal and African-Canadian justice issues. The AIC Dalhousie website (Dalhousie - SOSA-AIC), which is regularly updated, provides a clear indication of the research products of recent years even though the website is largely restricted to research output that does not include articles in professional journals or edited books available elsewhere.

Atlantic Research Centre (ARC)
Managing Director: Nadia Ridgway
Phone: (902) 494-7113
Website: http://arc.medicine.dal.ca/

Established in 1967, the ARC conducts basic biomedical research in the fields of lipid metabolism and cell signalling, areas of fundamental importance to a variety of disorders including cancer, neurological, heart and infectious diseases. It also provides education and experience in these fields to undergraduate and graduate students, other researchers, and the general public. The ARC houses state-of-the-art facilities for biochemical and molecular biologic research, including a regional proteomics service facility (DalGEN). http://geomics.medicine.dal.ca/

582 Centres and Institutes
Canadian Institute of Fisheries Technology (CIFT)
Director: S. E. Paulson, PhD
Telephone: (902) 494-1260
Fax: (902) 426-0219
Website: http://cift.engineering.dal.ca

CIFT was established in 1979 at the former Nova Scotia Technical College (now TUNS). The federal Department of Fisheries and Oceans provided much of its early specialized laboratory and seafloor pilot-scale processing equipment, and Industry Canada provided start-up funding and designated CIFT a centre of excellence. As a government-approved laboratory for advanced technology, it also provides R&D services on a cost-recovery basis to industry and to various governmental agencies. The Institute promotes technology transfer and the development of advanced technologies aimed at more effective commercial utilization of both marine and terrestrial resources in Canada and throughout the world.

In addition, CIFT offers unique opportunities for post-graduate training and research through the Food Science program. Major areas of emphasis are: food biochemistry and microbiology; fats, oils, nutraceuticals and other bioactives; physical properties of foods; fish food processing engineering; food safety and preservation; food rheology, food fermentation and beverage science.

Facilities
CIFT is located in the MacDonald Building of Sexton Campus at 1360 Barrington Street in downtown Halifax. The Institute’s facilities include:

- fat and oil laboratory
- food chemistry laboratory
- food development laboratory
- sensory evaluation laboratory
- food process engineering pilot plant
- low temperature storage facility
- food physical properties laboratory
- food microbiology laboratory

These areas contain specialized instrumentation and food processing equipment to enable experimental processing, laboratory analysis, and product storage evaluation. In addition, a computer-controlled cold-storage facility, the pilot plant is equipped for experimental processing including freezing, thawing, thermal processing, drying, centrifugation, and meal-base manufacture.

The pilot plant is well equipped for thermal processing with an automated retort capable of steam, steam-air, or water immersion processing research. The specially designed cold-storage facility is computer controlled and particularly useful in monitoring changes in foods as a result of food storage history. The pilot plant is also equipped with a custom-built computer-controlled heat pump device that is used in food dehulling experiments. Specialized laboratory equipment includes: automated high performance and fast protein liquid chromatography systems, gas chromatography/mass spectrometry system, preparative ultracentrifuge, multi-purpose refrigerated centrifuge, multicell centrifuge, analytical and preparative electrophoresis/electroelution systems, pulse field electrophoresis system, thermocycler, DNA gel electrophoresis, HPLC/DLLC for 2D electrophoresis, Image Master 2D elite software, capillary electrophoresis system, ultra-low temperature freezer, universal texture testing machine, various colimeters, U.V. and visible spectrophotometer, spectromameter, electron microscopic analyser, workstations for mathematical modelling and computer simulation. Linkham stirring stage/microscope, Nikon microscope (various attachments), controlled stress rheometer with high temperature/pressure attachment, controlled size chromatometer, Viscometer, and a rolling bed viscometer.

Educational Opportunities
Graduate (MSc and PhD) programs are available through the Food Science and Technology program. Also post-doctoral research opportunities are offered. Graduate level classes in food science, food processing technology, marine oils, engineering design, packaging technology, fish post-mortem biochemistry, food microbiology, food rheology and food process science. Students with degrees in food science, engineering design, packaging technology, fish post-mortem biochemistry, food microbiology, food rheology and food process science. Students with degrees in food science, engineering, chemistry, biochemistry, microbiology or biology are invited to apply.

Centre for African Studies
Phone: (902) 494-3177
Fax: (902) 494-2105
Director: Theresa Ulicki, PhD

This Centre, established in 1975, advances instruction, publication, research and development education programs in African Studies. Associated affiliate offers courses through the Departments of History, International Development Studies, Political Science, French, Sociology and Social Anthropology and Philosophy. The Centre sponsors academic and non-academic symposium and policy conferences on Africa and encourages interdisciplinary interaction at all levels on African subjects and issues. It co-operates with the International Development Studies department and the International Research and Development Office.

Centre for Comparative Genomics and Evolutionary Bioinformatics
Director: Andre J. Roger, PhD
Coordinator: Wanda Danilchuk
Phone: (902) 494-3170
Fax: (902) 484-1355
Website: http://www.cgeb.dal.ca

The Centre for Comparative Genomics and Evolutionary Bioinformatics (Cgeb) at Dalhousie University encompasses an interdisciplinary group of researchers in the Faculties of Medicine, Science and Computer Science. Although microbial genome evolution and diversity are at the heart of many of the Cgeb researchers’ activities, our work spans computational biology, computer science, statistical modeling and comparative genomics, with a strong focus on method and theory. The application of DNA sequencing technologies to characterize the genomes of a wide diversity of microbes has generated vast quantities of genome sequence data. Now the computational challenge is to develop from this enormous resource more comprehensive and theoretically robust phylogenetic, genetic and ecological models to further our understanding of the many roles microbes in the biological world.

Cgebung researchers are united by the common goal of using this vast resource of genomic information to elucidate evolutionary patterns and processes: the pathways by which microbial organisms have diversified over the last 3.5 billion years of earth’s history and through which they continue to shape the global environment. Only through the integration of experimental genomic approaches and sophisticated bioinformatic modeling will we be able to achieve this goal.

Cgebung researchers and trainees are supported by grants from the Canadian Institutes for Health Research (CIHR), Natural Sciences and Engineering Research Council (NSERC), Biomedical Research Council of the Canadian Society for Clinical Research (CSFCR), the Nova Scotia Health Research Foundation (NSHRF). The Centre itself is supported by funding from the Tula Foundation (http://www.tula.ca), the Faculties of Medicine, Science and Computer Science. Cgebung is also supported by a large grant from the Tula Foundation (http://www.tula.ca) that provides funds for training top-notch postdoctoral and graduate students in the Cgebung research specialties. We also have a regular seminar series that brings world renowned scientists to speak at Dalhousie University and interact with faculty members and students.

Centre for Environmental and Marine Geology
Director: Professor D. B. Scott

This Centre was originally founded as the Centre for Marine Geology in 1983 to promote interdisciplinary studies of various types of problems in marine Geology, capitalizing on our unique position in Canada with links to related departments such as Oceanography, Physics, Biology, the Bedford Institute of Oceanography and our hosting of the Canadian office of the Ocean Drilling Program. Since 1983 the role of the Centre has changed, reflected in the new name, which better describes the work being done now where marine geology is combined with environmental problems. We have three new faculty that expand our expertise into new chronological techniques and permit us to strengthen our capacity in the petroleum-related environmental geology. Some of the objectives of the Centre are to: 1) continue to expand our participation in a revitalized east coast offshore energy related problem, 2) continue our climate-change work with a variety of approaches both offshore and on land, 3) expand into Arctic regions both with major oceanographic and shelf-based programs, and 4) continue our capacity to help solve some of the many environmental geology problems associated with urbanization.

Centres and Institutes 583
Centre for European Studies
Director: Jerry White
Email: jerry.white@dal.ca
The Centre for European Studies was established in 1971. The Centre is concerned with teaching, research, publication, policy advice and other professional activities in the fields of European studies and its relations with the rest of the world. The Centre is an integral part of the Department of Political Science. Centre faculty offer courses through the Department in foreign and defence policy, international relations and development, and maritime affairs at both undergraduate (majors and minors) and graduate (MA and PhD) levels. The Centre also supervises masters and doctoral theses in these fields.

For further information, consult the Centre’s website: http://centreforeuropeancalsses.dal.ca

Centre for Innovation in Infrastructure
Director: John Newhook, PhD, PEng
Location: Room B233, Sexton Campus
The Centre for Innovation in Infrastructure is an industry-oriented research centre with the Faculty of Engineering and with strong affiliations with the Department of Civil and Resource Engineering. Established in 1983 as the Nova Scotia CAD/CAM Centre, the Centre has acquired and maintained significant testing equipment related to these research areas and contributes to the maintenance and operation of the research facilities within the Department of Civil and Resource Engineering.

Centre for International Trade and Transportation
Location: Suite 2000, 6100 University Avenue
PO Box 1500
Halifax, NS B3H 0R2
Director: Daniel Lynch, PhD
Email: dlynch@dal.ca
Student Exchange Coordinator: Tim Richard
Phone: (902) 494-2224
Email: tim.richard@dal.ca
Fax: (902) 494-1483
Website: http://sit.dal.ca

The Centre was established in 1975 with a mission to foster international business teaching and research and enhance Canada’s global competitiveness through innovative programs and outreach services. CITT supports a wide range of learning experiences including academic exchanges, the Student Trade Symposium, the International Case Competition. The Centre recently partnered with Michigan State University’s Canadian Studies Program to work towards increasing global trade between the US and Canada (the world’s largest trading partners).

Centre for Marine Vessel Development and Research (CMVDR)
Contact: Josh Love, Dean of Engineering
The mandate for this Centre is under review.

Centre for Water Resources Studies
Director: Graham Gagnon, PhD, PEng
Location: Office D5-14
1360 Barrington Street
Telephone: (902) 494-2468
Email: cwrs@dal.ca
Fax: (902) 494-1483
Website: http://cwrs.dal.ca

The Centre for Water Resources Studies was established in December 1981, by a resolution of the Board of Governors (TUNS). The objectives of the Centre are to carry out applied research which contributes to the effective and sustainable protection of water resources in Atlantic Canada, nationally and internationally, and to facilitate the transfer of new knowledge to potential users. Research programs directed by the Centre address the design of cost-effective on-site wastewater systems and storm water treatment, the use of new water treatment facilities for drinking water, and the management and the computer modeling of hydrodynamic and hydrochemical processes. The Centre also has a number of research advisory panels, which involve professionals from industry, government and academia in applied research related to water use and water management.

Facilities
The Centre for Water Resources Studies is located on the fifth floor of “D” Building on Sexton Campus. Laboratory and office space is available for specific graduate research topics, as well as ongoing research carried out by Centre personnel. Analytical equipment includes instrumentation for determining low levels of major ions and nutrients, as well as trace quantities of metal ions in water. The Centre has apparatus for laboratory investigation and pilot scale testing of innovative water treatment methods using Dissolved Air Flotation (DAF) and ozonation and has worked with local consultants and municipalities to develop new applications of the technologies. The Centre is a North American leader in the development of on-site sewage disposal and has had an active research program in this area since 1987. In conjunction with the Faculty of Agriculture, the Centre has a field laboratory investigating sloping sand filters and septic disposal.

Educational Opportunities
The Centre co-operates with academic units in the training of undergraduate and graduate students who have an interest in water resources. The Centre also participates in the program leading to a dual degree in water resources engineering and planning, in conjunction with the School of Planning into the Faculty of Architecture and Planning.
Dalhousie Institute for Society and Culture (DISC)
Director: Danielle Dumoulin
Research in the Faculty of Arts and Social Sciences
Email: ddumoulin@dal.ca
Website: http://arts.dal.ca/Research

Established in 2006, the Dalhousie Institute for Society and Culture serves as the virtual home for the many research activities and initiatives within the Faculty of Arts and Social Sciences. Its primary function is to support research within the Faculty through various fellowship programs, publicly and fund raising initiatives, publishing ventures, conferences and lecture series, and interdisciplinary exchanges.

The Institute encompasses two broad and overlapping research clusters: Societies in Local, National, and Global Contexts, and Cultural Representations and Representativeness. The former cluster aims to develop new knowledge about political, social, and economic transformations, about national and regional identities, and about global relations, whereas the latter seeks to investigate and preserve cultural traditions, literatures, and languages, to foster studies and theories of cultural identity, to stimulate artistic innovation, to examine the shaping influence of beliefs and religions, and to contribute to the cultural life and profile of Canada. These two clusters, with a flexibility and health unequalled in Eastern Canada, are uniquely equipped to analyze social and cultural change.

European Union Centre of Excellence
Director: Robert Zouotth
Phone: (902) 494-7558
Fax: (902) 494-3600
Email: enor@dal.ca
Website: http://www.euce.dal.ca

Established in 2006, the European Union Centre of Excellence (EUCE) seeks to promote greater awareness of the European Union (EU) in Canada. The Centre coordinates academic and public outreach activities such as exchanges of faculty and students, conferences, workshops, symposia, and other projects involving the Faculties of Arts and Social Sciences, Law, Management and Science. The Centre supports research in areas such as health care policy and EU Copyright legislation, the EU and economics crisis, public health policy in EU and Canada.

Global Health Office
Director: Shannon O’Hearn
Location: 6500 University Avenue
PO Box 1500
Halifax, NS B3H 4R2
Email: po@medicine.dal.ca
Website: http://go.medicine.dal.ca

Working through an interprofessional lens, the Global Health Office is committed to training global health leaders who strengthen health systems for vulnerable populations in Canada and abroad. The office prepares students, residents and faculty doing clinical electives, training or research with our international partners as well as leads summer programs in Tanzania, Thailand and The Gambia.

• Events on relevant and timely global health issues are organized through the office including journal clubs, speaker series, conferences.
• Opportunities to become involved in research and mentorship.
• A certificate in “Advocates in Global Health”.
• Annual awards are presented to a student, resident and faculty member who demonstrate leadership in global health.
• Partnerships with organizations strengthen the global reach including CHSS (Canadian Society for International Health), CUGER (Canadian Coalition for Global Health Research), National Network on MNSHI (Maternal, Newborn and Child Health), ACIC (Atlantic Council for International Cooperation), GHEC (Global Health Education Consortium), and International Centre (Dalhousie)

Health Law Institute
Director: Constance Macdonald, BA, MA, LLB
Location: Dalhousie University
6500 University Avenue
PO Box 1500
Halifax, NS B3H 4R2
Phone: (902) 494-6130
Fax: (902) 494-6179
Email: hli@dal.ca
Website: http://www.hli.dal.ca

An Interdisciplinary Institute of the Faculties of Law, Medicine, Health Professions, and Dentistry, the Institute is committed to the advancement of health law and policy and the improvement of health care practice and health systems through scholarly analysis, professional education, and public service. Its objectives are:
1. To foster strong and innovative health law and policy scholarship by:
   • contributing to research in health law and policy
   • providing external consultation services on matters having a significant impact on health law or policy
2. To advance health law and policy education by:
   • designing and implementing education programs for law, medicine, health professions and dentistry students
   • providing continuing education opportunities for health professionals and legal practitioners
3. To serve the public in areas of expertise by:
   • contributing to the societal understanding of health law and policy issues
   • providing expertise to organizations in the public sector
   • engaging in the policy-making process at local, regional, and national levels.

Institute for Big Data Analytics at Dalhousie University
Director: Dr. Stan Marwin
Phone: (902) 494-6130
Location: Goldberg Computer Science Building
6500 University Avenue
PO Box 1500
Halifax, NS B3H 4R2
Email: bigdata@cs.dal.ca
Website: https://bigdata.dal.ca

Big data is not a single breakthrough invention, but rather a coming together and reaping of several technologies: huge, inexpensive data harvesting tools and databases, efficient, fast data analytics and data mining algorithms, the proliferation of user-friendly data visualization methods and the availability of affordable, massive and non-proprietary computing. Using these technologies in a knowledgeable way allows us to turn the masses of data that are created daily by businesses and government into an important asset that will result in better, more informed decisions. This could lead, for example, to intelligent, personalized electric power pricing for consumers, to optimized port traffic management or to the discovery of interesting patterns of migrations in marine life.

The Institute for Big Data Analytics (Big Data @ Dal) acts as a catalyst and a container in which a number of Dalhousie researchers and internationally renowned experts in all of the above areas can work together on Big Data.

The Institute has three main goals. Firstly, we want to become an international hub of excellence in big data research - a place to which scientists will come to work on interesting problems, but also in search of interesting, real-life applications. Our second goal is to make the Institute very relevant to local industry in Nova Scotia, and in Canada. To achieve this goal, we want to focus - for example - on interesting, real-life applications.

The Institute has three main goals. Firstly, we want to become an international hub of excellence in big data research - a place to which scientists will come to work on interesting problems, but also in search of interesting, real-life applications. Our second goal is to make the Institute very relevant to local industry in Nova Scotia, and in Canada. To achieve this goal, we want to focus - for example - on interesting, real-life applications.

The Institute has three main goals. Firstly, we want to become an international hub of excellence in big data research - a place to which scientists will come to work on interesting problems, but also in search of interesting, real-life applications. Our second goal is to make the Institute very relevant to local industry in Nova Scotia, and in Canada. To achieve this goal, we want to focus - for example - on interesting, real-life applications.
Institute for Research in Materials (IRM)
Director: Richard A. Dunlap, PhD
Administrative
Offices: 6414 Colby Road
PO Box 15000
Halifax, NS B3H 4R2
Phone: (902) 494-1469
Fax: (902) 494-4016
URL: http://irm.dal.ca

Established in 2002, IRM is made up of over 100 faculty members in seven faculties (Science, Engineering, Dentistry, Medicine, Architecture and Planning, Management and Health Professions) and 17 departments. The goals of the Institute include advancing the collective interdisciplinary research efforts in materials science and engineering at Dalhousie University, facilitating interdisciplinary teaching in materials science within the existing discipline structure, and enhancing interactions between materials researchers at Dalhousie University with relevant government laboratories and industry, especially within the region. The Institute funds collaborative research within the university on interdisciplinary applications to funding agencies for major equipment and research infrastructure, and collaborates with external organizations to pursue research opportunities.

All Dalhousie University faculty members carrying out research in the area of materials are eligible to be Members of IRM. Postdoctoral fellows and graduate students associated with these research groups are invited to become Associate Members of IRM.

In addition to equipment operated by individual members of the Institute, IRM has established (2003) the Facilities for Materials Characterization, an $11 million suite of instruments managed by the Institute. The equipment includes:
- High-field solid-state NMR spectrometer (managed jointly with the Nuclear Magnetic Resonance Research Resource)
- Scanning electron microscopes
- Focused ion beam
- X-ray photoelectron spectrometer (XPS)
- Secondary ion mass spectrometer (SIMS)
- Ultra-high speed optical systems
- Physical property measurement systems (PPMS)
- Scanning thermal microscopes (SThM)
- Hot press
- Grindle Sonoic
- High-speed motion record/analyser
- FT-Raman spectrometer

These facilities are open to external users. Please contact IRM@dal.ca for details.

IRM offers an NSERC CREATE program called DREAMS (Dalhousie Research in Energy, Advanced Materials and Sustainability). Students accepted into the program carry out collaborative interdisciplinary research in world-leading laboratories with innovative new equipment and direct experience working with industrial partners. DREAMS scholarships are available to graduate students in Chemistry, Physics and Mechanical Engineering. See DREAMS website for details at DREAMS.irm.dal.ca

Law and Technology Institute
Director: Robert J. Currie, BA, MA, LLB, LLM
Administrative
Location: Schulich School of Law
6061 University Avenue
Halifax, NS B3H 4R2
Phone: (902) 494-1398
Fax: (902) 494-1316
Email: lynda.corkum@dal.ca
URL: http://irm.dal.ca

The Institute participates, with the faculties of Computer Science and Management, in technology law issues to students, faculty members, and the practicing Bar. The Institute hosts an Eminent Speakers Series, which brings leading IT lawyers and academics to Dalhousie to share their expertise. The Institute is home to the Canadian Journal of Law and Technology, co-edited by Professors Currie and Coughlan. The CJLT is the pre-eminent technology law review in Canada.

Marine & Environmental Law Institute
Location: Schulich School of Law
6061 University Avenue
Halifax, NS B3H 4R2
Phone: (902) 494-1398
Fax: (902) 494-1316
Email: MELAW@dal.ca
Website: http://www.dal.ca/law/MELAW

The Institute, which is housed in the Law School, carries out research capacity-building and consultancy activities and also directs the MELAW academic specialization. MELAW provides a specialization in marine and/or environmental law to JD students. In addition to their scholarly research and publication activities, MELAW faculty, associates and staff carry out research projects and provide advisory services to agencies of the United Nations, international non-governmental organizations, and regional organizations as well as assisting government departments, private sector institutions and non-governmental organizations in Canada and overseas.

The Marine & Environmental Law Institute is also the editorial office of the Ocean Yearbook, a major international interdisciplinary annual, devoted to the publication of articles and book reviews on the environment and oceans.

The Marine & Environmental Law Institute is housed in the Law School, which is committed to the academic development of marine and environmental law. The Institute provides a specialization in marine and environmental law to JD students. Students have the opportunity to pursue specialized interests in fields such as criminal law, environmental law and internet and digital rights, as they relate to law and technology.
### Minerals Engineering Centre

**Director:** Josh Lemon, PhD, PEng  
**Phone:** (902) 494-617  
**Location:** 1360 Barrington Street  
**Website:** http://www.mineng.dal.ca

The Minerals Engineering Centre provides opportunities for undergraduate and graduate students to learn various analytical and testing techniques applicable in their course of studies. It also offers services to faculty members to assist in their teaching and research activities.

Further information may be obtained from the Director of the Centre.

### Neuroscience Institute

**Contact:** neuroscience@dal.ca  
**Website:** http://www.neuroscience.dal.ca

The Neuroscience Institute was established in 1990 to promote and coordinate research in neuroscience, the modern interdisciplinary study of the brain and nervous system.

It serves as an umbrella organization to foster research and training in neuroscience at Dalhousie. A major objective is to increase understanding of the functions of the nervous system in health and disease. To this end, the Institute coordinates the activities of neuroscientists in the Faculty of Medicine, the Faculty of Science, the Faculty of Computer Science and the School of Biomedical Engineering. Facilitating collaborations between clinical and basic scientists in these Faculties, some focus of current research activity includes: development and plasticity of the nervous system; cognitive neuroscience; motor control; autonomic function; synaptic function; and sensory physiology. The Institute also promotes and coordinates training programs in neuroscience currently offered through its constituent departments at both the undergraduate and graduate levels.

It sponsors seminar series annually, and coordinates a variety of community outreach events.

### Norman Newman Centre for Entrepreneurship

**Director:** Ed Louch, DComm (Dalhousie), MBA (Ivey), PhD  
**Facility Coordinator:** Pauline Dan  
**Entrepreneur in Residence:** Brian Lowe  
**Local Researcher:** Dr. Mary Kofidi  
**Website:** http://entrepreneurship.dal.ca

The mission of Norman Newman Centre for Entrepreneurship (NNCE) is "To build a vibrant entrepreneurial culture among students, faculty and the community at large that embraces innovation in creating value for society led by leaders who manage with integrity, focus on sustainability and make things happen." This will be accomplished by:

- Supporting the academic programs and courses taught within the Rowe School of Business.
- Supporting the entrepreneurial community.
- Providing opportunities for Dalhousie students to work with the entrepreneurial community.
- Facilitating the incubation of student business ideas.

The NNCE is attached to the Rowe School of Business, within the Faculty of Management, Dalhousie University. NNCE promotes entrepreneurship in many forms, through innovative curricular, applied research and collaborative extension work (outreach). Our definition of entrepreneurship is broad and includes the development or growth of enterprises for profit, for social benefit and for sustainability. Our research is field-based and involves working with real ventures, on real projects, using state-of-the-art methodologies. Our extension work is multi-disciplinary and ranges from internships with entrepreneurs to collaborations with other faculties throughout the university.

All of our programs are designed to enhance the student’s entrepreneurial knowledge, skills, and network. In addition to supporting technology and technical start-ups through mentoring, coaching and training efforts, the NNCE will provide mentoring, coaching and training to entrepreneurial students, create exemplars of technology and technical entrepreneurship through research projects and further expand the relationship with the business community.

### Nuclear Magnetic Resonance Research Resource (NMR³)

**Director:** J. K. Rainey, BSc, MSc, PhD  
**Faculty Coordinator:** M. D. Larned, BSc, PhD  
**Solid-state NMR Coordinator:** U. Werner-Zwanziger, BSc, PhD

Established in 1982 with assistance from the Natural Sciences and Engineering Research Council, the Resource is located in the Department of Chemistry and is used by faculty, researchers and graduate students in all Maritime universities, the NRC, local industry and many Dalhousie Departments. It is concerned with applications of magnetic resonance spectroscopy to problems in chemistry, minerals science, biology, biochemistry and related areas. Its current instrumentation includes Bruker Avance 500 and Avance 600 NMR spectrometers for liquids and Bruker Avance DX 400 and Avance 700 NMR spectrometers for solids. NMR users also have direct access to a Bruker Avance III 700 NMR spectrometer with cryoprobe capabilities for liquids experiments. The Avance 500 and Avance 600 NMR spectrometers were installed in 2003 with funding from NSERC, the Canadian Foundation for Innovation and the Atlantic Innovation Fund. The cryoTRUEX on the Avance III 700 were purchased in 2009 by Dalhousie University through an Atlantic Canada Opportunities Agency Grant. The Resource offers facilities for hands-on use by researchers and also provides NMR spectra and expertise to scientists throughout the Atlantic Region and beyond.

For more information see: http://nmr3.dal.ca

### Trace Analysis Research Centre

**Director:** A. Donato, BSc, PhD

The Trace Analysis Research Centre (TARC) was established in 1971 with the assistance of a grant from the Natural Research Council. Its mission is to train analytical chemists and, through research, to contribute to the advancement of analytical chemistry. Members of TARC from Dalhousie and associated institutions comprise a group with expertise in a wide range of chemical analysis techniques in areas such as spectroscopy, chromatography, mass spectrometry, electrochemistry, and nuclear analytical chemistry.

---

**Lead Researcher:** Dr. Mary Kilfoil  
**Residence:** Brian Lowe  
**Entrepreneur in Coordinator:** Paulette Dun  
**Director:** Ed Leach, BComm (Dalhousie), MBA (Ivey), PhD

It sponsors seminar series annually, and coordinates a variety of community outreach programs.
1. Advising and Access Services Centre (AASC)

Our academic advising team provides advising, academic planning and personal coaching to current Dalhousie University students. The Advising and Access Services Centre is also Dalhousie’s focal point for expertise on student accessibility and accommodation. As part of our ongoing efforts to facilitate a successful transition to and throughout your university experience, we offer several points of contact for students, including: summer transitions/orientation programs, ABL@Dal workshops exclusively for students with disabilities; and one-on-one advising appointments. Our programs are delivered through the “coaching as advising” model to help students develop strategies for academic success from first-year to graduation.

We help you build on your ability to make decisions that positively impact your academic and career success. We promote the Learn Well @ Dal philosophy by providing accessible and thorough advising and coaching for students accessing Dal services.

Early consultation is encouraged to ensure appropriate planning for any of your needs that may include accommodations. AASC advisors meet with you to determine areas to facilitate your success, and if accommodations are required, we ensure those accommodations are put into place by working with your course instructors.

For further information, please visit our website www.dal.ca/learnwell, call (902) 494-3077 or email access@dal.ca.

2. Alumni Association/Alumni Relations

The Alumni Association is comprised of over 110,000 graduates of Dalhousie University. A global network of volunteers keeps alumni informed and involved with the university. By providing many programs and services, the Association fosters a strong relationship between Dalhousie and its alumni.

Dalhousie alumni play a vital role in the health and future of the university. Many alumni return to Dalhousie regularly to hire graduating students. They also serve as advocates, ambassadors and student mentors. The financial support provided by our alumni helps ensure that Dalhousie will continue to provide exceptional post-secondary education to future generations.

The Alumni Association’s Board of Directors works with the Dalhousie Alumni Relations Office, located in the Macdonald Building (902 494-8881, t-800-565-9980, alumni@dal.ca). Together, the Association and Alumni Relations strive to identify opportunities for alumni involvement, and to foster an environment that invites alumni to participate fully in Dalhousie’s well-being. Visit the website at www.dal.ca/alumni.

3. Athletics and Recreational Services

Dalhousie offers a wide array of programs, facilities and services to visit the diverse sport, recreation and wellness needs of our students. Located on the Studley Campus, Dalplex is the university’s primary fitness centre. Dalplex membership is included in full-time student fees, so students can simply bring their DalCard and swipe it in the turnstile for access to: the Cardio Plus Centre; our eight-lane, 50m indoor pool; a 5.6-mile indoor track; drop-in times for recreational basketball and volleyball; racquet courts; an outdoor tennis and beach volleyball court; and the Fun Zone play area for children. The F. H. Seaton Memorial Gymnasium includes a fitness centre, a gym with hardwood courts, group fitness classes, two squash courts, and dance room with lockers for easy access for students on the Sexton Campus. The Langille Athletic Centre is the sport and recreation facility for students on the Agricultural Campus.

Athletics and Recreational Services also offers many climbing, fitness, and outdoor recreation programs, classes, and trips each term, along with a broad range of intramural leagues and tournaments. Intramural sports are fun, free and an excellent way to meet other students. Sports offered include soccer, flag football and hockey in the fall; curling, basketball and inneb tube water polo in the winter term—and that’s just the tip of the iceberg! Dal offers you the opportunity to take part in more than 20 different recreational and competitive sports clubs, which are organized and run by students. The Rams varsity program represents the Agricultural Campus, offering competitive teams in badminton, basketball, women’s rugby, volleyball, cross country, hockey, soccer, swimming, track and field, and volleyball; that compete regionally in the Atlantic University Sport (AUS) conference and nationally in Canadian Interuniversity Sport (CIS). For more information about sport, fitness and recreational opportunities at Dalhousie visit www.athletics.dal.ca.

4. Black Student Advising Centre (BSAC)

The Centre’s mission is to foster a sense of community among ALL students, especially those who are of black/African descent. The BSAC hosts programs such as peer and professional mentorship, in-house tutoring and writing support as well as events to promote intercultural awareness. Providing confidential counseling services, personal and community support, advocacy, and relevant resource materials are a few of the roles of the BSAC advisor. The advisor also provides information about scholarships, bursaries and employment, and makes referrals to additional resources for student success. The BSAC includes a study space, a small computer lab and a lounge. For more information, drop by the Centre in room 418 of the Student Union Building, contact us at (902) 494-6446 or bsac@dal.ca or visit us online at www.dal.ca/bsac.

5. Career and Leadership Development Centre (CLDC)

The Career and Leadership Development Centre (CLDC) assists you in:

- exploring a full range of career and work possibilities that match your career goals;
- preparing job-search documents to present yourself effectively as a candidate for employment;
- obtaining information on employment opportunities and prospective employers;
- connecting with career opportunities through campus interviews, job and volunteer listings, referrals, direct application, networking, job-search events, publications, and/or information technology;
- developing and maintaining relationships with organizations that provide career development and professional opportunities for you.

The Co-Curricular Record (CCR) is a document that officially recognizes your accomplishments and experiential learning outside the classroom. The CCR program is available to all Dalhousie students and acknowledges your accomplishments in leadership, campus and community engagement, course-related service learning or experiential learning, awards and recognition, and training and development. Visit www.dal.ca/ccc for more information.

The CLDC also runs the free DALConnects leadership certificate program for students interested in building stronger connections with their community and learn about leadership through volunteering. Participants are paired with community organizations for volunteer opportunities and attend various workshops on leadership. Visit www.dal.ca/ccc for more information.

Drop by the CLDC on the fourth floor of the Student Union Building in Halifax or in the Dairy Building on the Agricultural Campus, or visit us online at www.dal.ca/ccc for more information on programs and services.

6. Centre for Learning and Teaching

The Centre for Learning and Teaching (CLT) works in partnership with the Provost’s office, academic units, faculty members, and graduate students to enhance the practice and scholarship of learning and teaching at Dalhousie University. CLT takes an evidence-based approach to advocating for effective teaching practices and curriculum planning, services to support the use of technology in education, and institutional policies and infrastructure to enhance the Dalhousie learning environment. For further information, teaching resources, or a confidential consultation, you are invited to contact the Centre for Learning and Teaching, located at Suite 500, Killam Library, 6225 University Avenue, (902) 494-1622, CLT@dal.ca, or you can visit the CLT website at: www.learningandteaching.dal.ca

Programmes: Workshop series, presentations, discussion groups, and demonstrations are scheduled to address the full spectrum of educational issues.
and is available for individuals and on a group basis. Counselling is provided by professionally trained counsellors and psychologists who assists you in your educational and career decision-making. Confidentiality and collaboration are important features we offer, in which you work with a career counsellor who assists you in your educational and career decision-making.

Counselling Centre can pre-screen for learning disabilities, attention-deficit hyperactivity disorder (ADHD) and/or Asperger’s disorder, and can suggest strategies, e-learning and the effective integration of classroom technology.

Confidential Consultations: Educational developers at CLT provide confidential consultation services to teaching assistants, faculty, and administrators on a wide range of learning and teaching issues.

Annual Events: On an annual basis, CLT coordinates New Academic Staff Orientation, TA Day, Teaching Dossier Workshops, and the Dalhousie Conference on University Teaching and Learning that brings together participants from across the University and the country to explore issues related to specific themes.

Classroom Planning: CLT offers expertise and support to the university in the areas of classroom design, media production, presentation technology, and technical services.

- Video and Audio Production Services offers a full range of creative and production services for educational or other academic purposes.
- Technical Services provides expert advice on the design and installation of classroom technology systems, system programming, video conferencing and system repairs.

Teaching Awards: CLT administers several university-wide teaching awards, including the Dalhousie Educational Leadership Award, the Alumni Award of Excellence for Teaching, Sessional and Part-Time Instructor Award for Excellence in Teaching, and the President’s Graduate Teaching Assistant Award.

Certificate in University Teaching and Learning: The Certificate program is offered to graduate students by the CLT in partnership with the Faculty of Graduate Studies. The purpose of the program is to assist academic departments in preparing students for their teaching responsibilities and to enhance their professional development opportunities for both academic and non-academic careers.

Student Ratings of Instruction (SRI): Higher education institutions in Canada and abroad encourage faculty to use student evaluations to rate their teaching for effectiveness. The CLT is responsible for the administration of the university-wide Student Ratings of Instruction. The ratings are administered online towards the end of each term. Quantitative and qualitative data are collected and the opportunity for departments and individual instructors to add questions to the form is available. Students may access the results of the universal questions, Part A of the form, when instructors consent to release the results of their own courses.

Guest: CLT offers a number of Teaching and Learning Grants each year for instructors to develop and evaluate new teaching methods, curriculum innovation, and explore technology opportunities. The Centre also organizes the Change One Thing Challenge award, inviting instructors to submit their student engagement ideas that they have implemented into their teaching. The CLT Travel grants provide financial assistance to faculty members to travel to a teaching and learning conference.

Publications: The CLT newsletter, Focus on University Teaching and Learning, is published three times a year and is available online on the CLT website (www.learningandteaching.dal.ca). CLT’s leading library provides resources on topics related to teaching. CLT’s WeBSITE is a guide to links to electronic resources can be found at http://dept.dal.ca/clt/resources/.

7. Counselling Services

As a student you will find that most of the time you can deal with the everyday issues that pop up while attending university. But life sometimes challenge you in unexplored ways. And when it does, the Dalhousie Counselling Services Centre can help. We can help you resolve problems and learn new skills in a confidential, supportive environment. Also, if you are struggling with your classes or assignments and suspect you may have a learning disability, staff in the Counselling Centre can pre-screen for learning disabilities, attention-deficit hyperactivity disorder (ADHD) and/or Asperger’s disorder, and can suggest various learning strategies that you may find helpful. Career Counselling is a confidential and collaborative process we offer, in which you work with a career counsellor who assists you in your educational and career decision-making.

Counselling is provided by professionally trained counsellors and psychologists and is available for individuals and on a group basis.

For information about the making an appointment, hours of operation or any of the other services, programs and events provided by the Dalhousie Counselling Centre, please visit us online at www.dal.ca/counselling.

If you have feelings of depression, anxiety or stress, but you’re not in Halifax or are uncomfortable about sitting down one-on-one with a counsellor, you can register for SHEFT, an online self-help program at www.dal.ca/shelf. It includes modules that you work through at your own pace, along with phone or email contact with a program coach.

8. Dal Allies/LGBTQ Support

At Dalhousie we encourage and support a respectful and inclusive campus community. Allies work with students, staff and faculty to offer programs, services, training, support, referrals and resources to members of the Dalhousie Rainbow community. For confidential discussions find four to contact Dalhousie’s Peer Ally (www.dal.ca/peerally). We can help if you:

• question (or have questions about) sexuality, gender identity and sexual information
• need support in coming out
• need help dealing with issues you are experiencing on campus
• want to be yourself and not have to hide your identity when seeking services or support
• want to discuss issues without fear of judgment

Contact us dalally@dal.ca or visit us online at www.dal.ca/dalally for more information.

9. DalCard

The DalCard (also referred to as the Dalhousie University ID Card) is a convenient multi-purpose card, which gives the cardholder access to various facilities and services on and off campus. The DalCard is an identification card and also serves as a debit card for retail and vending purchases on and off campus; for printing at Academic Computer Labs; printing and photocopying at the Libraries; Dalplex membership and access card; and a residence meal plan and access card - all in one! The DalCard must be presented to write an officially scheduled examination or to use the library facilities. In addition, some services such as the issuance of library or scholarship cheques, require the presentation of a valid DalCard.

The DalCard Office is located at 1400 Seymour Street. Students on the Sexton campus may obtain the DalCard at the Student Service Centre, B Building, 1360 Barrington Street (accessible location). See www.dal.ca/dalcard for more information.

On the Agricultural Campus, students can obtain their DalCards at the Enrolment Services Centre, located in the Cox Institute, Room 100.

10. Dalhousie Arts Centre

Designed as a multipurpose facility, the Dalhousie Arts Centre is home to the Rebecca Cohn Auditorium, Dalhousie Art Gallery, and the Fountain School of Performing Arts. The Arts Centre is an integral part of the cultural experience on our community and studio as the arts complex of its kind in Nova Scotia. Of the numerous performing arts spaces in the Dalhousie Arts Centre, the Rebecca Cohn Auditorium, is the most familiar and prestigious. The 1,040 seat concert hall is the home of Symphony Nova Scotia, as well as the venue of choice for a wide variety of performers ranging from Ballet Jorgen, Just For Laughs, Indigo Girls, Serena Ryder, and the Trews to name a few. Other performing and visual arts spaces in the Arts Centre include: The Sir James Dunn Theatre (240 seats), the Rebecca Cohn Studio, Murray Studio, Studio II, The MacAloney Room, and the Art Gallery.

The Dalhousie Art Gallery offers the public access to national and international touring exhibitions and initiates many ambitious and exciting exhibition programs. The Fountain School of Performing Arts maintains a full production schedule including student theatre productions, faculty recital series and weekly student noon-hour recitals. Further information on the Fountain School of Performing Arts can be found at http://dal.ca/performings.
11. Dalhousie Multifacility Centre

The Dalhousie Multifacility Centre aims to explore the fundamental issues and concerns of the world from a religious perspective in a setting that encourages open and free thought and the mingling of religions, cultures, and ideas. It provides a non-threatening space where students, staff, and faculty can address the basic questions of meaning and purpose in their lives — no matter what their faith, philosophy, or doubt may be.

For more information about the services and supports we offer, or to speak with a chaplain, drop by the Centre at 1321 Edward Street or visit us online at www.idl.ca.

12. Dalhousie Student Union

Every Dalhousie student is automatically a member of the Dalhousie Student Union. The Student Union is recognized by an agreement with the University Administration and by an Act of the Nova Scotia legislature as the single voice of Dalhousie students. All student activities on campus are organized through the Student Union, and the Student Union is the focus of all student representation. The business of the Student Union is conducted by a Council made up of 40 members. Every student is represented by one or more representatives of their faculty, elected within their faculty in the spring. As well, a number of other constituency groups are represented on the Council because they are uniquely affected by many campus issues. Also on the Council are the student representatives elected to the Senate and Board of Governors.

One of the most important resources of the Student Union is the Student Union Building (O.S.U.) located at 63-36 University Avenue between Seymour and Loewen Streets. The SUB, which is owned by the University and administered, managed and controlled by the Student Union and is paid for through Student Union fees, was opened in 1968 as a centre for student activity on campus. The Student Union Building provides a wide range of services for students including the Student Advocacy Service, Travel Cuts, The Goodwood, Campus Upp, food services, and much more. Every student has the opportunity to take advantage of the Union’s financial, physical and organizational resources. Students have an opportunity to become involved in committees dealing with various student issues. The DSU also offers over 155 clubs, societies and organizations for students to participate in. All students are invited to satisfy their curiosity by visiting the Student Union Council offices. The Student Council office is located on the second floor of the SUB in room 222 and is open from 8:30 am to 4:30 pm Monday through Friday, telephone number (902) 494-1106 or email dsuinfo@dal.ca. Check out the website at www.dsu.ca or my.dsu.ca.

13. Dalhousie Student Union Health and Dental Plan

The DSU Health and Dental Plan is provided to all full-time students that begin their studies in the fall term. The fee for the DSU Health and Dental Plan and DSU International Health Plan is charged to each student’s account and is compulsory unless the student has comparable private health insurance or MSI. If students have comparable coverage or MSI, they may be eligible to opt out (cancel) of the DSU International Health Plan during the appropriate opt out period. Please contact the DSU Health Plan Office for the opt out period dates.

Students are also eligible to add immediate family members to the plan when they arrive in Nova Scotia by completing an application and paying an additional fee. The DSU Health and Dental Plan Office is located in the basement of the Student Union Building at 63-36 University Avenue. The Office is open Monday-Friday 9:30 am-4:30 pm. Should you need to contact the office please phone (902) 494-2850 or email dsuhealth@dal.ca. More information regarding coverage, opt out/in procedures and deadlines is available at www.studentvip.ca/dsu.

15. Housing/Residence Services

The University is pleased to guarantee residence in University-owned properties for all new Dalhousie undergraduate students who complete the residence application process by June 30th. It’s important that students planning to attend Dalhousie think well in advance about their accommodation needs.

Students should be aware of several important points of reference in regard to residence accommodation. Upon admission to a program of study, all students will receive university residence information. They will also be asked to pay an admission deposit. It’s important to apply to residence (online) and to pay the admission deposit promptly as the dates these are received will determine when the Residence Application is considered. Residence applications will not be considered from individuals who have not gained admission to a program of study, or paid their admission deposit and residence application fee.

Students with disabilities are encouraged to contact the Residence Office at (902) 494-1634, or email: residence@dal.ca for information and assistance. Students with disabilities are also encouraged to contact Advising and Access Services prior to moving into residence.

The traditional style residences at Dalhousie are chiefly for undergraduate students. All students living in traditional style residences are required to purchase one of the meal plan options available.

The information below gives a description of 1. traditional on-campus residences, 2. non-traditional on-campus residences, which includes apartment style housing owned by the university, 3. the services offered by the Off-Campus Housing office, and 4. general information. For information on residence fees, see the Fees section of the Calendar.

Students should be aware of several important points of reference in regard to residence accommodation. Upon admission to a program of study, all students will receive university residence information. They will also be asked to pay an admission deposit. It’s important to apply to residence (online) and to pay the admission deposit promptly as the dates these are received will determine when the Residence Application is considered. Residence applications will not be considered from individuals who have not gained admission to a program of study, or paid their admission deposit and residence application fee.

Students with disabilities are encouraged to contact the Residence Office at (902) 494-1634, or email: residence@dal.ca, for information and assistance. Students with disabilities are also encouraged to contact Advising and Access Services prior to moving into residence.

11. Dalhousie Multifacility Centre

The Dalhousie Multifacility Centre aims to explore the fundamental issues and concerns of the world from a religious perspective in a setting that encourages open and free thought and the mingling of religions, cultures, and ideas. It provides a non-threatening space where students, staff, and faculty can address the basic questions of meaning and purpose in their lives — no matter what their faith, philosophy, or doubt may be.

For more information about the services and supports we offer, or to speak with a chaplain, drop by the Centre at 1321 Edward Street or visit us online at www.idl.ca.

12. Dalhousie Student Union

Every Dalhousie student is automatically a member of the Dalhousie Student Union. The Student Union is recognized by an agreement with the University Administration and by an Act of the Nova Scotia legislature as the single voice of Dalhousie students. All student activities on campus are organized through the Student Union, and the Student Union is the focus of all student representation. The business of the Student Union is conducted by a Council made up of 40 members. Every student is represented by one or more representatives of their faculty, elected within their faculty in the spring. As well, a number of other constituency groups are represented on the Council because they are uniquely affected by many campus issues. Also on the Council are the student representatives elected to the Senate and Board of Governors.

One of the most important resources of the Student Union is the Student Union Building (O.S.U.) located at 63-36 University Avenue between Seymour and Loewen Streets. The SUB, which is owned by the University and administered, managed and controlled by the Student Union and is paid for through Student Union fees, was opened in 1968 as a centre for student activity on campus. The Student Union Building provides a wide range of services for students including the Student Advocacy Service, Travel Cuts, The Goodwood, Campus Upp, food services, and much more. Every student has the opportunity to take advantage of the Union’s financial, physical and organizational resources. Students have an opportunity to become involved in committees dealing with various student issues. The DSU also offers over 155 clubs, societies and organizations for students to participate in. All students are invited to satisfy their curiosity by visiting the Student Union Council offices. The Student Council office is located on the second floor of the SUB in room 222 and is open from 8:30 am to 4:30 pm Monday through Friday, telephone number (902) 494-1106 or email dsuinfo@dal.ca. Check out the website at www.dsu.ca or my.dsu.ca.

13. Dalhousie Student Union Health and Dental Plan

The DSU Health and Dental Plan is provided to all full-time students that begin their studies in the fall term. The fee for the DSU Health and Dental Plan and DSU International Health Plan is charged to each student’s account and is compulsory unless the student has comparable private health insurance or MSI. If students have comparable coverage or MSI, they may be eligible to opt out (cancel) of the DSU International Health Plan during the appropriate opt out period. Please contact the DSU Health Plan Office for the opt out period dates.

Students are also eligible to add immediate family members to the plan when they arrive in Nova Scotia by completing an application and paying an additional fee. The DSU Health and Dental Plan Office is located in the basement of the Student Union Building at 63-36 University Avenue. The Office is open Monday-Friday 9:30 am-4:30 pm. Should you need to contact the office please phone (902) 494-2850 or email dsuhealth@dal.ca. More information regarding coverage, opt out/in procedures and deadlines is available at www.studentvip.ca/dsu.

15. Housing/Residence Services

The University is pleased to guarantee residence in University-owned properties for all new Dalhousie undergraduate students who complete the residence application process by June 30th. It’s important that students planning to attend Dalhousie think well in advance about their accommodation needs.

Students should be aware of several important points of reference in regard to residence accommodation. Upon admission to a program of study, all students will receive university residence information. They will also be asked to pay an admission deposit. It’s important to apply to residence (online) and to pay the admission deposit promptly as the dates these are received will determine when the Residence Application is considered. Residence applications will not be considered from individuals who have not gained admission to a program of study, or paid their admission deposit and residence application fee.

Students with disabilities are encouraged to contact the Residence Office at (902) 494-1634, or email: residence@dal.ca, for information and assistance. Students with disabilities are also encouraged to contact Advising and Access Services prior to moving into residence.

The traditional style residences at Dalhousie are chiefly for undergraduate students. All students living in traditional style residences are required to purchase one of the meal plan options available.

The information below gives a description of 1. traditional on-campus residences, 2. non-traditional on-campus residences, which includes apartment style housing owned by the university, 3. the services offered by the Off-Campus Housing office, and 4. general information. For information on residence fees, see the Fees section of the Calendar.

Students should be aware of several important points of reference in regard to residence accommodation. Upon admission to a program of study, all students will receive university residence information. They will also be asked to pay an admission deposit. It’s important to apply to residence (online) and to pay the admission deposit promptly as the dates these are received will determine when the Residence Application is considered. Residence applications will not be considered from individuals who have not gained admission to a program of study, or paid their admission deposit and residence application fee.

Students with disabilities are encouraged to contact the Residence Office at (902) 494-1634, or email: residence@dal.ca, for information and assistance. Students with disabilities are also encouraged to contact Advising and Access Services prior to moving into residence.
iii. Eliza Ritchie Hall
Opened in 1987, Eliza Ritchie Hall is a co-ed residence. It provides traditional residence accommodation for 92 students in predominantly single rooms. This three-storey building is located close to the Dalplex and to Shirreff Hall, where students normally have their meals. Facilities include study rooms, a multipurpose room, reception area, laundry facilities, leisure lounges with kitchenettes and, within each room, ResNet (high-speed Internet/wireless), *local telephone service and *cable TV service are also provided. * These services are subject to change.

iv. Residence Houses
Dalhousie also has two residence houses, which are co-ed. Formerly simple family homes, each house has kitchen, living room and washrooms facilities, which are shared among the residents in the house. The character of these homes has been maintained as much as possible. These houses have only single rooms, each with a bed, wardrobe, study desk, lamp and chair. Linen, cooking stovetops and small appliances are not provided. The Residence Houses are now part of the Mini-Residence community. All houses require meal plans. ResNet (high-speed Internet), *local telephone service and *cable TV service are provided in each room.
* These services are subject to change.

v. Ridley Hall
Ridley Hall is located on LeMarchant Street, behind the Student Union Building, and offers 490 single rooms, primarily to undergraduate students. Services include a dining room, laundry rooms, television lounges and a 24-hour front desk. Each room comes equipped with ResNet (high-speed Internet/wireless), *local telephone service and *cable TV service.
* These services are subject to change.

vi. Lynall House, DeMille House, Colpitt House
These properties, which were former faculty offices, have been converted into three mini-residences with a shared courtyard. There are a total of 49 single rooms in a small living arrangement. Like Residence Houses, these houses have all single rooms. Each room comes with a bed, wardrobe, study desk, lamp and chair. Each house has a kitchenette, living room and washroom facilities, which are shared among the residents in the house. All houses require meal plans. Each room comes with ResNet (high-speed Internet/wireless), *local telephone service and *cable TV service.
* These services are subject to change.

vii. LeMarchant Suite-Style Residence
The new LeMarchant Suite-style residence will open for the 2014/2015 academic year. While the bottom two floors of this building will be occupied by student services, the top five floors will serve as residence for 320 students.
LeMarchant Suite-style residence will feature a mix of two, three and four bedroom units. A number of single rooms sharing private bathrooms will be available as well as accessible rooms. Each floor will have a full community kitchen, a lounge and a laundry room.

LeMarchant Suite-style residence will have wireless Internet access throughout the building, as well as storage space for bicycles and hockey gear in the basement. The residence space will have its own secure lobby, separate from the student services offices. Residents will be able to collect their mail before getting onto one of two elevators dedicated specifically to the residence floors.
* These services are subject to change.

B. Sexton Campus

i. Gerard Hall
Gerard Hall is a 12-story traditional style co-ed residence that houses 241 students in single, super single, and double rooms. It is located in the heart of downtown Halifax. Collins on the corner of Morris and Quinan Streets. Gerard Hall offers laundry facilities, a big screen TV, DVD player and satellite access in the main lounge. Within residence rooms, ResNet (high-speed Internet/wireless), *local telephone service and *cable TV service are provided. Gerard Hall residents commonly use the O’Brian Hall dining hall, this sexes away, or may use the dining halls in Howe, Ridley or Shirreff Halls.
* These services are subject to change.

ii. O’Brien Hall
O’Brien Hall is a co-ed residence located in the heart of downtown Halifax. There are approximately 315 Dalhousie students residing in a combination of single and double rooms in O’Brien. Facilities include a dining hall and laundry facilities. Within-residence rooms, ResNet (high-speed Internet/wireless), *local telephone service and *cable TV service are provided.
* These services are subject to change.

C. Agricultural Campus - Truro
Trueman, Fraser and Chapman Houses all offer co-ed living with the option of same sex and quiet sections. These three houses are conveniently located around Homeschool Crescent, within a five minute walk of classes, labs, meal hall, the library, the farm and our athletic centre. Residence is a great place to meet new friends while developing a good study routine. Meal plans are mandatory. Each room is equipped with ResNet (high-speed Internet/wireless), *local phone and *cable TV service.
* These services are subject to change.

i. Fraser House
Fraser House accommodates 116 students in single, super-single, and double rooms. Services include comfortable lobby area, TV/games lounge, quiet/study lounge, laundry room and kitchenette. Fraser House has a small all-male section.

ii. Chapman House
Chapman House accommodates 125 students in single, super-single, and double rooms. Services include comfortable lobby area, TV/games lounge, quiet/study lounge, laundry room and kitchenette.

i. Trueman House
Trueman House accommodates 73 students in single, super-single, and double rooms. It is the smallest house in the complex and tends to offer quieter atmosphere. Services include comfortable lobby area, TV/games lounge, two small quiet/study lounges and a laundry room.

2. Non-Traditional On-Campus Housing

A. Studley (Main) Campus

i. Glengarry Apartments
Located on the Studley Campus on Edward Street, Glengarry Apartments is a four-storey brick building offering co-ed accommodation for 40 students.

Glengarry has 12 furnished apartments. Each apartment includes a kitchen, living room and bathroom. There are also four furnished bachelor apartments, which are always in high demand. Laundry facilities are located in the basement, but there is also a limited amount of storage space. ResNet (high-speed Internet/wireless), *local telephone and *cable TV service are provided in all apartments.
* These services are subject to change.

Meal Plans are mandatory, but may be purchased for use at any dining hall on campus.

B. Sexton Campus

i. Graduate House
This residence is home to 13 returning students, normally in single rooms. It is located next door to O’Brien Hall and is a short walk from Gerard Hall on Morris Street. ResNet (high-speed Internet/wireless), *local telephone service and *cable TV service are provided in each room.
* These services are subject to change.

Meal plans are not mandatory but may be purchased for use at any dining hall on campus including O’Brien Hall, which is next door.

C. Agricultural Campus - Truro

i. Trueman House/Graduate Unit
Located on the grounds, the Residence Houses in Trueman House are conveniently located around Homeschool Crescent, within a five minute walk of classes, labs, meal hall, the library, the farm and our athletic centre. Residence is a great place to meet new friends while developing a good study routine. Meal plans are mandatory. Each room is equipped with ResNet (high-speed Internet/wireless), *local phone and *cable TV service.
* These services are subject to change.

Resources and Services 591
592 Resources and Services

kitchen, tv lounge and laundry room (shared with all students living in Trueman House). Each room is equipped with ResNet (high speed internet/voice), local phone and cable tv service. A meal plan is not mandatory

3. Living Off-Campus

Dalhousie’s Off-Campus Housing has a website: http://www.dal.ca/oh. The site features a wide variety of housing resources available for students on both the Halifax and Truro campuses.

There is an Off-Campus Housing office for the Halifax campus located in Ridley Hall and offers help to students in finding off-campus accommodations.

The Off-Campus Housing Office provides centralized information on available housing. The office is responsible for all centrally managed computing, networking and staff through an overall focus on service, advising and consulting. ITS

16. Information Technology Services (ITS)

Information Technology Services (ITS) empowers the success of students, faculty and staff through an overall focus on service, advising and consulting. ITS supports university instructional, research and administrative requirements. The department is responsible for all centrally managed computing, networking and telecommunications facilities including university email, MyDal, the central information system (Runner), online learning systems, wired and wireless network connections and student computer labs.

Need help with a technical problem? Visit one of three Help Docks located on the Halifax campus, or our Help Desk at the Dalhousie Agricultural Campus in Truro.

Personal computers and related supplies can be purchased by students and Dalhousie employees through PCPL, the campus computer store (www.pcpcl.dal.ca).

With a range of new and emerging technologies, ITS staff will help you explore options to make the most of your experience at Dalhousie. See www.its.dal.ca for more information.

17. International Centre

The International Centre (IC) is committed to welcoming, supporting and serving the needs of new and continuing international degree-seeking and exchange students at Dalhousie. Advisors are available to meet with you on a variety of matters including finances, immigration, exchange opportunities, health insurance and personal issues. Referrals are made to other resources and services on campus as necessary. The IC organizes orientation activities that assist international and exchange students in adjusting to a new culture and in achieving their educational and personal goals. A variety of social, cultural and information programs are held throughout the year. During the fall and winter terms, an International student advisor is also available to meet, by appointment, at the Student Service Centre (Section Campus) at 1360 Barrington Street. Agricultural students may contact the International Student Coordinator on the Truro Campus at (902) 893-6905.

Student exchange and study-abroad services are facilitated by the Study Abroad and Exchange advisors at the IC. This branch of the office promotes student mobility by assisting departments and faculties with: the establishment of student exchange agreements; managing university-wide exchange programs; advising students on international study, work and volunteer opportunities; providing pre-departure and re-entry services; administering the Study Work International Fund (SWIF) and the George Bills Study in England Bursary; and maintaining the International Opportunities Resource Library.

Contact us at International.Centre@dal.ca or (902) 494-1566, or visit us online at www.dal.ca/international.

18. Libraries

The Dalhousie University Libraries accommodate the needs of the undergraduate teaching programs, graduate and faculty research projects, and professional schools. The Dalhousie Libraries are: the Killam Memorial Library – Humanities, Social Sciences, Management, Computer Science, and Science; the Sir James Dunn Law Library, the Kettlec Health Sciences Library; the MacEachr Agricultural Library, the Sexton Design and Technology Library – Engineering, and Architecture and Planning, as well as the University Archives and Geographical Information Sciences Centre (both located in the Killam Memorial Library).

Staff in all five libraries provide reference and research services. Access to materials outside of the Dalhousie Libraries is available through the Document Delivery Service. The libraries manage DalSpace, an institutional repository where many of Dalhousie’s researchers’ publications can be found. The libraries also use Open Journal Systems (OJS) software and provide digital publishing services to the university community.

All of the libraries have public access computers and Wi-Fi. Most of the libraries have bookable study rooms for groups as well as individual carrels for private study.

The website, libraries.dal.ca, provides access to collections, database, subject guides and other services. The Dalhousie Libraries also has a Copyright Office that provides guidance to students, faculty, and staff on copyright issues. The Killam and Sexton Libraries have Help Docks that offer general computer and software support, and 3D printing.

The Dalhousie Libraries are a member of Novanet, a network of all Nova Scotia university and college libraries, sharing a single automated online catalogue of the holdings of the member libraries. Users borrow from Novanet libraries upon presentation of their university ID card.

19. Mature Student Services

Applicants who are Canadian citizens or permanent residents and 21 years of age or older, by the first day of classes, and are not eligible for admission on the basis of regular admission requirements, may apply for admission as a mature applicant. In order to be eligible, the applicant must either have no university-level study, or...
have attempted less than one year of transferable coursework. The student cannot have been in full-time university-level study for a minimum period of two years.

Applicants must provide a completed application for admission, high school or post-secondary transcripts, any other relevant documents (e.g. SAT scores, if available), and a letter outlining life and work experiences since last attending full-time study. Applicants will be expected to clearly outline their education goals and motivation to succeed at university study. All factors will be considered in the admission decision.

Admission under this policy is restricted to first-year undergraduate programs. Applicants must have completed grade 12 English (or equivalent) with a minimum grade of 65. Admission to some programs will require completion of other required subjects.

A student admitted on this basis may be restricted in the number of classes he/she can register in during the first year. Otherwise, these students have the same rights, privileges and responsibilities as other students within their program.

Services include pre-admission counselling and university preparation courses such as Writing Skills for Academic Study, Chemistry, Academic Math and Pre-Calculus. For more information call (902) 494-2373 or visit http://collegeoffeetraitingsal.ca.

### 20. Native Post-Secondary Education Counselling Unit

The Native Post-Secondary Education Counselling Unit is open to students of First Nations descent. We can help you form support networks in your studies, and we also host social activities, cultural events and information sessions. Visit our Halifax office (6286 South Street, 2nd floor) to enjoy some coffee or tea, take advantage of advising with the Native Post-Secondary Liaison, and meet other Native students, or contact us by phone at (902) 494-8863. In Truro, Agriculture students can contact the Special Cohort Coordinator at havery@dal.ca.

### 21. Office of Human Rights, Equity & Harassment Prevention

The overall mandate of the Office of Human Rights, Equity & Harassment Prevention is to foster and support an inclusive working and learning environment where all members of the University community share responsibility for establishing and maintaining a climate of respect.

The Office is responsible for administering a number of University policies including: the Accommodation Policy; the Employment Equity Through Affirmative Action Policy; complaints based on the Statement on Prohibited Discrimination; the Personal Harassment Policy; and the Sexual Harassment Policy. The Human Rights & Equity Advisor and the Advisor, Harassment Prevention/Conflict Management also liaise with the Office of the Vice-President, Student Services, regarding the Code of Student Conduct.

Other initiatives in the Office of Human Rights, Equity & Harassment Prevention include education and training on topics such as diversity, accommodation, harassment awareness and prevention, conflict resolution and more. Workshops are offered regularly for students, faculty and staff.

The website for the Office of Human Rights, Equity & Harassment Prevention offers downloadable versions of each of the policies, information on the education and training opportunities offered, and additional resources including an annual Mosaic Calendar featuring a variety of religious and cultural holidays.

Contact: Lisa DeLong, Advisor, Human Rights & Equity (902) 494-2704
Guy Walton, Advisor, Harassment Prevention/Conflict Management (902) 494-3175

Phone: (902) 494-6472 (office line)
Fax: (902) 494-1179
Email: hrpe@dal.ca
Website: www.hrepe.dal.ca

### 22. Registrar’s Office

The Registrar’s Office is responsible for high school liaison, admissions, awards and financial aid, registration, maintenance of student records, scheduling and coordinating formal examinations, and co-ordination. Of greater significance to students, however, is the role played by members of the staff who provide information, advice, and assistance. They offer advice on admissions, academic regulations and appeals, financial aid and budgeting and the selection of programs. In addition, they are prepared to help students who are not quite sure what sort of assistance they are looking for, referring them as appropriate to departments for advice about specific major and honours programs or to the office of Student Services or to specific service areas such as the Counselling Services Centre.

Students can access the services of the Registrar’s Office at three locations. The main office is located in Room 335 of the Henry Hicks Academic Administration Building on the Stavely Campus. Students attending classes on the East or Agriculture Campus can also access Registrar’s Office services in Building B (Student Service Centre), Sexton Campus or Cox Institute (Enrolment Services Centre), Agricultural Campus.

Enquiries may be directed to:

The Registrar, Dalhousie University
PO Box (1500)
Halifax, NS Canada B3H 3B2
Telephone: (902) 494-2450
Fax: (902) 494-1630
Email: admissions@dal.ca

### 23. South House

A DSU service and Halifax’s only full-time women’s centre. A volunteer-driven, student-funded, gender-inclusive safe space for all members of the Dalhousie community. South House is a trans- and queer-positive, smoke-free space that offers a resource centre, library, and free meeting space for woman- and anti-oppression organizing and gathering. Visit us online at www.dalwomenscentre.ca or drop by the Centre on the first floor of 6268 South Street.

### 24. Student Advocacy Service

The Dalhousie Student Advocacy Service helps ensure that students receive fair and reasonable decisions on issues dealing with academic appeal and discipline matters. Our volunteer advocates advise students about their case, help them draft and submit any written submissions, prepare them for hearings and formal appeals, and provide support through the process and articulate matters of importance during the hearing. This year-round service is confidential and operates entirely by students. Contact us at the Student Union Building (Room 310), by phone at (902) 494-2305 or visit us online at www.dusu.ca.

### 25. Student Clubs and Organizations

Extracurricular activities at Dalhousie are as varied as the students who take part in them. Organizations range from small informal groups to large well-organized ones, from university-wide and interest based. Some are decades old with long traditions, others are new and disappear as students interests change. A list of clubs, societies and organizations is available every fall to new students who are encouraged to select and participate, this list can be found at http://students.dal.ca/clubs. If there is not a society that meets your interests, the Dalhousie Student Union encourages and will help you to make your own. For more information on DSU societies please contact the society coordinator at society.coordinator@dal.ca or by telephone at (902) 494-1106 or visit us online at www.dusu.ca.

### 26. Student Dispute Resolution

Dalhousie’s Office of Student Dispute Resolution works with students, community and campus partners to help resolve disputes in a restorative and respectful manner. Referrals come from Campus Security, Code of Conduct Complaints, Halifax Regional Police and the Crown Prosecution Office (as part of the Dalhousie Restorative Justice Pilot Project) and from Residence Life Managers.

Following the principles of respect, responsibility and community, we work with groups to help restore relationships and find satisfactory resolutions.

Visit us online to find out more about the resources available through the Student Dispute Resolution office at www.daluhrj.ca.

### 27. Student Health Promotion

Located in the Live Well @ Dal office on the 4th floor of the Student Union Building, Student Health Promotion staff and volunteers can give you unbiased advice and information to help you live a healthier lifestyle. Find out more about quitting smoking, rethinking your alcohol and substance use, managing your stress, increasing your personal fitness, coping with eating disorders and many...
28. Student Services
The Vice-President, Student Services (VPSS), is Dalhousie University’s chief officer of student affairs. Working with a dedicated team of specialists across campus, the office of the VPSS coordinates programs and delivers services in support of students’ academic, personal and professional development and community engagement.

Our efforts to enrich the Dalhousie student experience are focused in four key areas: Learning Connections, Community Connections, Wellness Connections, and Leadership and Career Connections. Within each area, professionally trained staff, counsellors and advisors are available to assist you at every step of your journey here at Dal, providing information, resources, programs and services that are tailored to your individual needs and consistent with your educational and life goals.

29. Studying for Success (SFS)
Our primary goal is to assist you in becoming a more efficient and effective learner. Studying for Success offers workshops to small groups of students to develop or enhance personal learning strategies and, when applicable, workbooks are customized to focus on particular disciplines or fields of study ensuring that the workshop content is relevant to your needs. Topics regularly covered include time management, getting the most from lectures, critical reading, problem-solving, preparing for and writing exams. Study Skills coaches offer personal coaching either by appointment or on a drop-in basis during regularly scheduled hours, and will refer students to other academic resources when appropriate. For further information, drop by our office at the Killam Library, call (902) 494-3077 to book an appointment or (902) 494-2468 to speak with the SFS coordinator, or visit us online at www.sfs.dal.ca.

30. University Bookstore
The University Bookstore, owned and operated by Dalhousie, is a service and resource centre for the university community and the general public. The Bookstore has required and recommended texts, reference books and supplies, as well as workbooks, self-help manuals and other reference material. As well, you can find titles by Dalhousie authors. The Bookstore carries all necessary and supplementary stationery and supplies. Also available are gift items, maps, clothing and schoolwear, cards, jewelry, clothing and gifts, including the Dalhousie-related merchandise. The Bookstore has a Special Order department located within the main Bookstore where you can place orders for customized clothing and customized general merchandise. We can also order and ship almost any book worldwide and work with faculties and departments to meet their specific needs.

The Bookstore Website has online ordering capabilities for both textbooks and general merchandise.

The main Bookstore is situated on the lower level of the Student Union Building on University Avenue, and is open year round, Monday to Saturday (hours vary throughout the year).

The Health Sciences Bookstore has the largest and most complete medical book section in Atlantic Canada, with over 2,000 titles in stock. Thousands of other titles are specially ordered annually, and the department ships out books to consumers and hospitals throughout the world. The Health Sciences Bookstore is located in the Dentistry building, 5011 University Avenue, and is open year round, Monday to Saturday. Hours vary throughout the year.

The Sexton Campus Bookstore is located in the Student Service Centre at 1360 Barrington Street (Building 8) and is open from 9 am – 4 pm Monday to Friday. It supplies texts and reference books required for Architecture and Engineering students as well as custom clothing, stationery, and other supplies.

The Dalhousie Agricultural Campus Bookstore is located in the Cox Institute at 50 Pictou Road, Room 142, Truro. The bookstore is open year round Monday to Friday. Hours vary throughout the year and is closed for a couple times during the summer months for about a week.

31. University Health Services
The University operates a medical clinic in Howe Hall staffed by family doctors and nurses. Further specialists’ services are available and will be arranged through Health Services when required. Student information collected by Health Services is completely confidential and may not be released without signed permission of the student.

Appointments are made during the clinic’s open hours, from 8:00 am to 10 pm, Monday to Friday, and 11 am to 5 pm, Saturday and Sunday, by calling (902) 494-2177. In the event of an urgent medical problem, students may seek medical advice during clinic hours. After hours, students should seek assistance by calling 911 to speak to a registered nurse, or visit the local emergency room. The QEII emergency rooms on Summer Street is the closest emergency room for students on the Halifax campus. For students in Truro, the clinic accepts walk-in patients and appointments. For details on the how the services are offered, please visit Health Services online via www.dal.ca/studenthealth. Any student who has had a serious illness within the last 12 months, or who has a chronic medical condition, may wish to contact and advise Health Services, preferably with a statement from the doctor.

All students must have medical and hospital coverage. All Nova Scotia students are covered by the Nova Scotia Medical Services Insurance. All other Canadian students must maintain coverage from their home provinces. This is especially important for residents of any province requiring payment of premiums. All non-Canadian students must be covered by medical and hospital insurance prior to registration. Details of suitable insurance may be obtained from the Student Accounts office prior to registration. Further information is available online at www.dal.ca/studenthealth.

32. University Secretariat
The University Secretariat provides professional and administrative support and advice to the Board of Governors and University Senate so as to facilitate their effective governance of the University.

The Secretariat manages, coordinates and informs the effective operation of the Board and Senate by:
• Supporting the operations of the University’s governance bodies and their respective standing and ad hoc committees;
• Preparing and developing objectives and plans to establish and achieve priorities;
• Advising on governance issues and developing and implementing policies, procedures and processes that reflect governance best practices;
• Developing, implementing, managing and coordinating the University’s academic integrity, student discipline and academic appeals policies and processes, and maintaining official records relative to these processes;
• Serving as a repository for University policies and information and data on matters related to University governance;
• Facilitating communications and collaboration with key stakeholders.

Visit the website at www.secretariat.dal.ca.

33. Writing Centre
The Writing Centre’s programs recognize that students in all disciplines are required to write clearly to inform, persuade, or instruct an audience in term papers, laboratory reports, essay examinations, critical reviews and other academic assignments. Students benefit from discussing their work with supportive instructors and peer tutors.

The Centre currently offers a number of services. The main office in the Killam Library’s Learning Commons allows students to obtain advice on writing issues. Tutors also work part of the week at Sexton and the Law School Library. Students on the Agricultural Campus can visit the Writing Centre on the main floor of the library. Seminars are held throughout the university year on topics such as essay writing, science writing, mechanics of writing, English as a second language issues, admissions applications, etc.

Contact the Writing Centre by visiting the main office in the Killam Learning Commons, calling (902) 494-3963 or emailing at writingcentre@dal.ca. For more information, online writing resources or to book an appointment online, visit www.dal.ca/writingcentre.
Fees

Student Accounts Office
Mailing Address: Henry Hicks Academic Administration Building 6299 South Street, Room 29
PO Box 15000
Halifax, NS B3H 4R2
Website: http://www.moneymatters.dal.ca
Service Location: Studley Campus
Henry Hicks Academic Administration Building, Rm 29
Monday to Friday, 8am – 4pm
(902) 494-2839
fax: (902) 494-2839
email: Student.Accounts@dal.ca
Section Campus
Student Service Centre
Monday to Friday, 8am – 4pm
(902) 494-2839
fax: (902) 494-2839
email: Student.Accounts@dal.ca
Agricultural Campus
Enrollment Services Centre
Monday to Friday, 8am – 4pm
(902) 403-572
fax: (902) 895-5529
email: registry.dalac@dal.ca

2014/2015 Important Dates:
September
19 Fees due for fall term
19 Last day to pay without late fee registration fee of $50
19 Last day for complete refund
October
20 $50 reinstatement fee assessed on all outstanding accounts over $100
November
5 Last day for partial refund fall term
16 Fees due for winter term and second installment of regular session
16 Last day to pay without late registration fee of $50
16 Last day for complete refund
January
10 $50 reinstatement fee assessed on all outstanding accounts over $100
February
15 Last day for partial refund for winter term
March
13 Last day for complete refund for winter term
NOTE: Please consult the online summer school timetable for the summer school registration schedule.

Website
http://www.moneymatters.dal.ca

I. Introduction
The following section of the calendar outlines the University Regulations on academic fees for both full-time and part-time students enrolled in programs of study during the fall, winter, and summer terms. A section on University residence and housing fees is also included. Students wishing to register for the summer term should consult the summer school timetable online at http://www.dal.ca for information on registration dates and fees.

All fees are subject to change with approval of the Board of Governors of Dalhousie University. The 2014/2015 Academic Fee Schedule will be available in June 2014, at http://www.moneymatters.dal.ca

NOTE: Student tuition fees and other fees published herein are applicable only to regular students admitted to a program through the normal application process. Other students who are admitted to Dalhousie under a special program or policy will be charged student tuition and other fees in accordance with such special program or policy. For further information regarding these fees, please contact the Student Accounts or the Dean’s office of the applicable faculty.

Students should make special note of the academic dates contained in the front section of the calendar as well as fee dates. Students should also be aware that additional fees and/or interest will be charged when deadlines for payment of fees as contained herein are not met.

All the regulations in this section may not apply to Graduate Students. Please refer to the Faculty of Graduate Studies section of the Graduate Calendar.

II. University Regulations
The following general regulations are applicable to all payments made to the University in respect of fees. Please refer to our website for additional information on payment options. http://www.moneymatters.dal.ca

• Fees must be paid in Canadian funds by cash, electronic bank transfer, interac, negotiable cheque or money order.
• Money transferred to a student’s account should not exceed the annual charges associated with tuition and ancillary fees.
• If payment by cheque is returned by the bank as non-negotiable, there will be an additional fee of $20 and the account will be considered unpaid. Furthermore, if the bank returns a cheque that was to cover payment of tuition, the student’s registration may be cancelled and, if re-submitted, a late fee will apply.
• Accounts in arrears must be paid by cash, certified cheque, money order or interac prior to registration in a future term.

A. Admission Deposits
A non-refundable deposit of $200 is payable on acceptance to all new undergraduate and graduate programs. Undergraduate students admitted by April 20 are required to pay the deposit by May 15. Undergraduate students accepted after April 20 must pay the deposit within three weeks of receiving an offer of admission. Graduate students must pay the deposit within four weeks of receiving an offer of admission. Undergraduate Medicine students are required to pay a $550 non-refundable, admission deposit. International Dentistry, Qualifying Dentistry and Internetworking students are required to pay a $2,500 non-refundable, admission deposit. Admission deposits are credited towards tuition and fees for the applicable term.

B. Registration
A student is considered registered after selection of course(s). Selection of course(s) is deemed to be an agreement by the student for the payment of all assessed fees. Non-attendance does not constitute withdrawal. Students must ensure that they cancel registration in all courses if they choose to withdraw.

1. Identification Cards (DaCard)
All full and part-time students should obtain identification cards upon registration and payment of appropriate fees. If a card is lost, a fee of $15 is charged. Regular session ID cards are valid until August 31.

2. Audit Courses
All students auditing a course pay one-half of the regular tuition fee plus full ancillary fees, if applicable. In such cases, the student is required to complete the usual registration process. A student who is registered to audit a course, who during the session wishes to change their registration to credit, must receive approval from the Registrar. This must be done on or before the last day for withdrawal without academic penalty.
The same deadline applies for a change from credit to audit. Graduate students please see Section 6.6-4-4 for audit information.

C. Late Registration

Students are expected to register on or before the specified registration dates. Students wishing to register after these dates must receive the approval of the Registrar. A late registration fee of $50 will apply if registration and payment of fees has not been completed by specified dates. This fee is payable at time of payment and will be in addition to regular fees.

1. Course Changes and Withdrawals

Students withdrawing from all courses must submit written notification to the Registrar’s Office. Non-attendance does not constitute withdrawal; you must formally withdraw to have your refund processed.

In the Faculty of Health Professions, students who wish to withdraw from the University must obtain written approval from the appropriate school or college and submit the appropriate forms to the Registrar. Students in these faculties should continue to attend course until their withdrawal has been approved.

D. Academic Fees

Note: Those rates are for 2013/2014 (for information only)

1. Fee Schedule

Upon approval of the 2014/2015 academic fees, a complete schedule showing the required payments of the academic fees and deposits will be available. The official schedule will be available in June 2014 at www.moneymatters.dal.ca.

Students withdrawing from all courses must submit written notification to the Registrar’s Office. Non-attendance does not constitute withdrawal; you must formally withdraw to have your refund processed.

For all courses, students should check that their courses are dropped. Refunds due to class withdrawals will be effective the date a course(s) is dropped online at http://www.dal.ca/online or written notification is received at the Registrar’s Office. Students in these faculties should continue to attend course until their withdrawal has been approved.

APPROVED TUITION FEES 2013/2014

<table>
<thead>
<tr>
<th>Program</th>
<th>Program Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>3,076.00</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>6,586.00</td>
</tr>
<tr>
<td>Dentistry</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Engineering</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Computer Science</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Nursing &amp; Kinesiology</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Health Science</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Law</td>
<td>10,113.00</td>
</tr>
<tr>
<td>Medicine</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Agriculture</td>
<td>600.00</td>
</tr>
<tr>
<td>Public Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Public Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Epidemiology</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Environmental Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Industrial Health Safety</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in International Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Public Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Toxicology</td>
<td>2,730.00</td>
</tr>
</tbody>
</table>

2. Exchange Students

Outbound exchange students whose fees are paid to Dalhousie University will be assessed tuition and fees for 15 credit hours in their faculty.

The same deadline applies for a change from credit to audit. Graduate students please see Section 6.6-4-4 for audit information.

C. Late Registration

Students are expected to register on or before the specified registration dates. Students wishing to register after these dates must receive the approval of the Registrar. A late registration fee of $50 will apply if registration and payment of fees has not been completed by specified dates. This fee is payable at time of payment and will be in addition to regular fees.

1. Course Changes and Withdrawals

Please consult Student Accounts for all financial charges and the Registrar’s Office for academic regulations.

Students withdrawing from all courses must submit written notification to the Registrar’s Office. Non-attendance does not constitute withdrawal; you must formally withdraw to have your refund processed.

In the Faculty of Health Professions, students who wish to withdraw from the University must obtain written approval from the appropriate school or college and submit the appropriate forms to the Registrar. Students in these faculties should continue to attend course until their withdrawal has been approved.

D. Academic Fees

Note: Those rates are for 2013/2014 (for information only)

1. Fee Schedule

Upon approval of the 2014/2015 academic fees, a complete schedule showing the required payments of the academic fees and deposits will be available. The official schedule will be available in June 2014 at www.moneymatters.dal.ca.

Students withdrawing from all courses must submit written notification to the Registrar’s Office. Non-attendance does not constitute withdrawal; you must formally withdraw to have your refund processed.

For all courses, students should check that their courses are dropped. Refunds due to class withdrawals will be effective the date a course(s) is dropped online at http://www.dal.ca/online or written notification is received at the Registrar’s Office. Students in these faculties should continue to attend course until their withdrawal has been approved.

APPROVED TUITION FEES 2013/2014

<table>
<thead>
<tr>
<th>Program</th>
<th>Program Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>3,076.00</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>6,586.00</td>
</tr>
<tr>
<td>Dentistry</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Engineering</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Computer Science</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Nursing &amp; Kinesiology</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Health Science</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Law</td>
<td>10,113.00</td>
</tr>
<tr>
<td>Medicine</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Agriculture</td>
<td>600.00</td>
</tr>
<tr>
<td>Public Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Public Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Epidemiology</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Environmental Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Industrial Health Safety</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in International Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Public Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Toxicology</td>
<td>2,730.00</td>
</tr>
</tbody>
</table>

2. Exchange Students

Outbound exchange students whose fees are paid to Dalhousie University will be assessed tuition and fees for 15 credit hours in their faculty.

The same deadline applies for a change from credit to audit. Graduate students please see Section 6.6-4-4 for audit information.

C. Late Registration

Students are expected to register on or before the specified registration dates. Students wishing to register after these dates must receive the approval of the Registrar. A late registration fee of $50 will apply if registration and payment of fees has not been completed by specified dates. This fee is payable at time of payment and will be in addition to regular fees.

1. Course Changes and Withdrawals

Please consult Student Accounts for all financial charges and the Registrar’s Office for academic regulations.

Students withdrawing from all courses must submit written notification to the Registrar’s Office. Non-attendance does not constitute withdrawal; you must formally withdraw to have your refund processed.

In the Faculty of Health Professions, students who wish to withdraw from the University must obtain written approval from the appropriate school or college and submit the appropriate forms to the Registrar. Students in these faculties should continue to attend course until their withdrawal has been approved.

D. Academic Fees

Note: Those rates are for 2013/2014 (for information only)

1. Fee Schedule

Upon approval of the 2014/2015 academic fees, a complete schedule showing the required payments of the academic fees and deposits will be available. The official schedule will be available in June 2014 at www.moneymatters.dal.ca.

Students withdrawing from all courses must submit written notification to the Registrar’s Office. Non-attendance does not constitute withdrawal; you must formally withdraw to have your refund processed.

For all courses, students should check that their courses are dropped. Refunds due to class withdrawals will be effective the date a course(s) is dropped online at http://www.dal.ca/online or written notification is received at the Registrar’s Office. Students in these faculties should continue to attend course until their withdrawal has been approved.

APPROVED TUITION FEES 2013/2014

<table>
<thead>
<tr>
<th>Program</th>
<th>Program Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>3,076.00</td>
</tr>
<tr>
<td>Arts and Social Sciences</td>
<td>6,586.00</td>
</tr>
<tr>
<td>Dentistry</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Engineering</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Computer Science</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Nursing &amp; Kinesiology</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Health Science</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Law</td>
<td>10,113.00</td>
</tr>
<tr>
<td>Medicine</td>
<td>8,286.00</td>
</tr>
<tr>
<td>Agriculture</td>
<td>600.00</td>
</tr>
<tr>
<td>Public Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Public Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Epidemiology</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Environmental Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Industrial Health Safety</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in International Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Public Health</td>
<td>2,730.00</td>
</tr>
<tr>
<td>Master of Science in Toxicology</td>
<td>2,730.00</td>
</tr>
</tbody>
</table>

2. Exchange Students

Outbound exchange students whose fees are paid to Dalhousie University will be assessed tuition and fees for 15 credit hours in their faculty.
E. International Students

1. Differential Fee

Registered students, who are not Canadian Citizens or permanent residents, are required to pay an additional “Differential Fee” to a maximum of $4,101 per term, subject to change each year. In 2013/2014, there is an approximate charge for part-time international students. International Dentistry, Qualifying Dentistry and Internet working students are exempt. Graduate Students please see Section 5.7 of the Graduate Studies Calendar to determine the number of years a student is required to pay the differential fee.

If a student receives permanent resident status, the differential fee will not be assessed for the current term and beyond. In order to process a retrospective reimbursement of differential fees in a current term, acceptable proof of residency must be submitted to the Registrar’s Office prior to the last business day of December, April, and August for each term.

2. Health Insurance

International students will be charged for an International Student Health Insurance Plan when they register. If a student already has comparable health coverage, they can apply to opt out of the International Student Plan at the DSU Health Plan Office before September 19, 2014. Costs for the health plan change annually. More details on the international student health plan costs and opt out process can be found at www.dsu.ca. Full-time students will also be assessed the extended DSU Health and Dental plans, see 11.F.2.

Health Insurance – International Students (2013/2014 rates, for information only)

- Single - $491 per year
- Family - $1,227 per year

3. Health Insurance - International Students (2013/2014 rates, for information only)

- Single - $491 per year
- Family - $1,227 per year

4. University Bus Pass Fee (UPass)

All eligible, full-time students will receive a Metro-Transit bus pass (UPass). The fee in 2013/2014 is $145 and is effective September through April. Please refer to http://www.upass.dal.ca for further information.

5. Laboratory Deposits

A deposit for the use of laboratory facilities in certain departments is required. The deposit is determined and collected by these departments. Students will be charged for careless or willful damage regardless of whether or not a deposit is required.

6. Additional Student Fees

Departments may also charge additional fees on a cost recovery basis not included in the fee schedule. Examples include, but are not limited to, print or copy fees, transportation costs and material fees. Students registered in online courses and distance programs will be assessed additional fees for delivery of these courses.

G. Statements and Monthly Notices

Statements

Students with current activity will be issued electronic statements. Students will be notified through their official Dalhousie email account when a new statement is available. Subsequent monthly payment reminders will be sent to the student’s official Dalhousie email address. Refer to http://www.moneymatters.dal.ca for more information.

H. Release of Student Financial Information

Student Accounts is often asked to disclose financial information on a student’s account by parents and others to whom they can make accurate tuition payments. University policy recognizes the financial account as belonging to the student and therefore, to protect student privacy, account information is considered confidential. For more information on granting permission for financial information to be released to a third party (such as a parent), please contact Student Accounts at (902) 494-3990 or in Truro at (902) 893-6722 www.moneymatters.dal.ca.

I. Payment

The payment of academic fees will be received at the Student Accounts Office located on the basement level of the Harry Hicks Academic Administration building, the Student Service Centre on Sexton Campus or the Enrolment Services Centre, Truro.
The following regulations apply to the payment of academic fees. For further information on regulations regarding withdrawal of registration, please refer to II.K.

a. All students must pay the applicable deposit in accordance with Section A.

b. Those paying the account balance by Canada Student Loan must negotiate the loan by September 19 or January 16 for the respective term. Interest will be charged after these dates and a late registration fee will apply.

c. Those whose fees are paid by a government (or other agency) must have the third party billing form completed and submit to Student Accounts by September 19 or January 16 for the respective term. This form is available online at http://www.moneymanagement.dal.ca.

d. Those paying the account balance by Canada Student Loan must negotiate the loan by September 19 or January 16 for the respective term. Interest will be charged after these dates and a late registration fee will apply.

e. Those whose fees are paid by Dalhousie University staff tuition fee waiver must present the appropriate waiver form and pay applicable incidental fees by September 19 or January 16, for the respective term.

f. Those who are Canadian citizens (or permanent residents), 65 years of age (or over) and enrolled in an undergraduate degree program will have their tuition fees waived, but must pay the applicable incidental fees.

g. Scholarships or awards paid by, or through, Dalhousie University will be applied to academic and residence fees.

h. When a Canada Student Loan, provincial loan or co-payable bursary is presented at the Student Accounts Office, any unpaid charges will be deducted.

i. Fees cannot be deducted from salaries paid to students employed at Dalhousie University.

j. Any payments made to a student account is first applied to past due balances.

1. Canada Student Loans

Students planning to pay by Canada Student Loan should apply to their province in April or May so that funds will be available by the time payment is required. The University will deduct欢欢charges from the loan at the time of endorsement. Please contact the appropriate provincial office to determine eligibility as well as course load requirements. A late fee of $50 will apply if the loan is negotiated after September 19, 2016. (January 16, 2015 for students registered for winter term and May 11, 2015 for students registering for the summer term).

2. Provincial Bursaries and University Scholarships

These bursaries are distributed by the Student Accounts Office. Any unpaid fees and/or temporary loans along with charges, if applicable, are deducted and payment will be issued following endorsement for any balance remaining. A valid Dalhousie University ID and Social Insurance Number must be presented at the Student Accounts Office to determine eligibility as well as course load requirements. A late fee of $50 will apply if the loan is negotiated after September 19, 2016. (January 16, 2015 for students registered for winter term and May 11, 2015 for students registering for the summer term).

For more information on student loans, bursaries or scholarships, inquiries should be directed to the Registrar’s Office, Henry Hicks Academic Administration Building, Room 110.

3. Receipts

The amount of academic fees constituting an income tax credit is determined by the Student Accounts Office. Any unpaid fees and/or temporary loans along with charges, if applicable, are deducted and payment will be issued following endorsement for any balance remaining. A valid Dalhousie University ID and Social Insurance Number must be presented at the Student Accounts Office to determine eligibility as well as course load requirements for provincial bursaries.

For more information on student loans, bursaries or scholarships, inquiries should be directed to the Registrar’s Office, Henry Hicks Academic Administration Building, Room 110.

J. Receipts

The amount of academic fees constituting an income tax credit is determined by the Student Accounts Office. A special income tax certificate (T2202A) will be available annually through Web for Student at http://www.dal.ca/online no later than February 28 for the previous calendar year.

K. Refunds

Students withdrawing from all courses must submit written notification to the Registrar’s Office. No attendance does not constitute withdrawal, you must ensure courses are dropped. Refunds due to course withdrawals will be effective the date a course(s) is dropped online at http://www.dal.ca/online or written notification is received at the Registrar’s Office. Please contact Student Accounts to have your refund processed.

In the Faculty of Health Professions, students who wish to withdraw from the University must obtain written approval from the appropriate school or college and submit the appropriate forms to the Registrar. Students in those faculties should continue to attend class until their withdrawal has been approved.

1. Refund Conditions

Refunds will be processed as follows:

a. Based on the withdrawal date, tuition is refunded based on percentages outlined in the refund schedule at http://www.moneymanagement.dal.ca.

b. No fee adjustment will be made for a student changing their degree or program as follows:

   - Regular (Sept - April) and Full Terms: After September 19
   - Winter Term: After January 16

   c. No refunds will be made for 30 days when payment has been made by personal cheque or 60 days for a cheque drawn on a bank outside of Canada.

   d. Refunds will be made to the appropriate Student Loan service provider if a student has paid with a student loan and no longer meets eligibility criteria.

   e. A student who is dismissed from the University, for any reason, is not entitled to a refund of fees.

   f. Refunds will be prorated on fees paid by Dalhousie scholarships and/or tuition waivers.

   g. A valid Dalhousie University ID must be presented in order for the student to receive a refund.

2. Refund Schedule

The most current version of the refund schedule is available at http://www.moneymanagement.dal.ca.

Important Information Regarding Refunds

a. A portion of fees as outlined in the refund schedule will be assessed if withdrawn from a course occurs after September 19 (Fall Term) and January 16 (Winter Term). Withdrawals before these dates will be completely refunded, but no substitutions will be allowed from a financial perspective after these dates.

b. Non-attendance does not constitute withdrawal and fees will be payable.

c. The refund schedule does not apply to the University of King’s College Journalism Program.

d. For financial charge inquiries, contact Student Accounts at (902) 494-5998 or Student.Accounts@dal.ca.

L. Delinquent Accounts

Accounts are considered delinquent when the balance of fees has not been paid by September 19 for the fall term or January 16 for the winter term. Accounts are considered delinquent when the balance of fees has not been paid by September 19 for the fall term or January 16 for the winter term. Interest, at a rate set by the University, will be charged weekly on delinquent accounts for the number of days overdue.

Effective July 1, 2015 the rate of interest is 6.0% per annum, compounded daily.

A student whose account is delinquent for more than 30 days will be denied University privileges including access to transcripts. A student will be reinstated upon payment of the fees outstanding, the arrears interest and a $50 reinstatement fee. Students will not be permitted to register in future terms until all outstanding amounts are paid in full. Subsequently, if the bank does not honour the payment, the student may be deregistered.

Graduating students whose accounts are delinquent on April 15 will not receive their degree/diploma parchment. For fall graduation the deadline is September 1. Transcripts are withheld until payment is received in full.

Accounts which become seriously delinquent may be placed in collection or further legal action may be taken against the individual. Students will be responsible for charges incurred as a result of such action.

III. Residence Fees

Residence rates vary depending on the location and style of accommodations available. For up-to-date residence options and rates, please visit http://www.dal.ca/residence. All residence rates include local telephone service with voice mail features, cable TV service and ResNet (high-speed Internet/wireless). Rates do not include the non-refundable $50 Residence Application Fee.

It is important to note that traditional residences have a mandatory meal plan; however, there are several options available for students. Traditional residences on
the Halifax campuses include: Howe Hall, Risley Hall, Shirreff Hall, Eliza Ritchie Hall, Gerard Hall, O’Brien Hall, Mini Residences and Residence Houses. Traditional residences on the Truro campus include: Chapman House, Fraser House, and Trueman House. Non-traditional residence options on the Halifax campuses include: Glengary Apartments and the Grad House. On the Truro campus a section of Trueman House is reserved for non-traditional accommodations. Meal plans are not required in non-traditional residences but are recommended. For up-to-date meal plan options and rates, please visit [http://www.dal.ca/foodservices](http://www.dal.ca/foodservices).

**Important:**

- Once offered admission to an academic program of study at Dalhousie, students are eligible to submit a residence application. The application will not be processed until both the $200 admission deposit and the $50 residence application fee have been paid.
- Students must be registered full-time at Dalhousie to apply to residence.
- No refund will be made to any resident who is dismissed for misconduct. Discretionary power in exceptional circumstances remains with the Director, Residence Operations, in conjunction with the Director, Residence Life or their designates.
- All residence students, new and returning, who have received notification of their room assignment, must pay a $500 deposit to confirm their acceptance. The deposit is due within the time frame specified by the Residence Office.
- $250 of the $500 deposit is refundable if cancellation is received prior to August 1. No refunds are made after August 1.
- The $50 residence application fee and $500 deposit can be paid by credit card (Mastercard, Visa, Amex) by visiting [http://www.dal.ca/admissions.html](http://www.dal.ca/admissions.html). For more payment options, please visit [http://www.dal.ca/admissions.html](http://www.dal.ca/admissions.html).
- No residence room will be held based on post-dated or “insufficient fund” cheques.
- Deposits or fees cannot be deducted from scholarships, fellowships, or similar awards.
- Residence agreements are for eight-month terms (September – April). Please note, residences close during the December break.

**A. Residence Term**

The residence term commences the Sunday prior to Labour Day and ends on the last day of the examination period in the College of Arts and Science in April. Students must vacate the residence 24 hours after their last exam and residences are closed over the December break.

If required, an additional fee is payable by all residents who are registered in a Faculty where the academic-session commences before or continues after the session of the College of Arts and Science. Special arrangements are to be made with the appropriate Residence Life Manager for accommodation for periods prior to or following the session as defined above.

**B. Payment of Residence Fees**

Payment may be made in full at registration or in two instalments. The first instalment must be paid in full by September 20, 2014. Interest is assessed weekly at a rate as set by the University and will be charged on all accounts outstanding after September 20, 2014 and on any second instalment outstanding after January 17, 2015. The student will be permitted to register for another session until all accounts are paid in full. A student whose account is delinquent for more than 30 days will be denied university privileges including access to transcripts. The student will be reinstated upon payment of the fees outstanding, the accrued interest, and a $50 reinstatement fee. For additional information regarding outstanding or delinquent accounts, please see [http://www.dal.ca/admissions.html](http://www.dal.ca/admissions.html).

All residence fees can be paid at the Student Accounts Office, the Student Service Centre (Sexton Campus), or online at [http://www.dal.ca/admissions.html](http://www.dal.ca/admissions.html). Students should make an appointment as soon as possible with the Assistant Manager of Student Accounts if they are having financial difficulties.

**C. Residence Communications**

All residences are wired for high-speed Internet/wireless, local telephone service and cable TV access. The cost is included in residence fees. Check out the website at [http://www.dal.ca/rescomm](http://www.dal.ca/rescomm).

*These services are subject to change.*
Awards

Scholarships, Awards, Financial Aid and Bursaries

The Registrar’s Office is responsible for:
- Undergraduate Scholarships
- Undergraduate Bursaries
- Temporary Loans
- Canada Student Loans
- Provincial Loans
- US Department of Education Loans
- Awards and Financial Aid Advice and Information

IMPORTANT NOTE: The University is reviewing the policy governing undergraduate awards. Consequently, portions of the following statement of policy may be modified or substantially altered and may be implemented during the course of the academic year of this Calendar.

A. Some Helpful Terms

1. Scholarships: A monetary award, at entrance or in-course and/or graduating level based on academic performance (in specific subject or group of subjects) and on the recognition of additional relevant attributes.

2. Bursary: An award granted on the basis of financial need.

3. Medal: An award based on recognition of an outstanding academic record at Dalhousie for a specific degree program in a particular subject.

4. Prize: A monetary award of any value, or a non-monetary award, based on general academic excellence, or proficiency in a specific area of study or competition.

5. External Award: An award given to the student of the university by an external agency. (The University may share in the selection, administration and/or payment of such an award).

6. Award: A monetary award, at entrance or in-course and/or graduating level based on academic performance (in specific subject or group of subjects) and on the recognition of additional relevant attributes.

B. Types of Awards

1. Scholarships: A monetary award, at entrance or in-course and/or graduating level based on academic performance (in specific subject or group of subjects) and on the recognition of additional relevant attributes.

2. Bursary: An award granted on the basis of financial need.

3. Medal: An award based on recognition of an outstanding academic record at Dalhousie for a specific degree program in a particular subject.

4. Prize: A monetary award of any value, or a non-monetary award, based on general academic excellence, or proficiency in a specific area of study or competition.

5. External Award: An award given to the student of the university by an external agency. (The University may share in the selection, administration and/or payment of such an award).

C. Scholarship Payments and Rebates

To receive scholarship funds, a student must be registered at least as a full-time student (minimum nine credit hours for degree students, six credit hours for technical students) at Dalhousie during the term(s) in which they are receiving the funds. Students registered in Graduate Studies, Medicine, Law and Dentistry (with the exception of Diploma in Dental Hygiene students), are ineligible to receive in-course scholarships or renew an existing scholarship. These faculties have their own awards programs. Insofar as scholarships, bursaries and governmental or Trust Deed should otherwise permit. (The University of King’s College has its own awards program.)

D. Award Duration

Dalhousie offers both renewable and non-renewable Entrance Awards. Non-renewable awards are held for one year. Renewable entrance awards are typically renewable for a maximum of four years. Holders of renewable awards are notified of either the renewal or the non-renewal of their awards. Please note that holders of renewable scholarships are NOT also entitled to hold Dalhousie in-course scholarships. (Please also refer to section “Graduation and Renewable or In-Course Scholarships” on page 601.)

E. Eligible Courses for Scholarship Assessment

The Registrar’s Office (Awards) considers those Dalhousie courses which are taken for credit in a designated degree/ diploma program during the academic year (or term in the Co-op program) as eligible courses for scholarship assessment. Correspondence courses are considered for scholarship purposes.

F. Scholarship GPA Calculation

The Scholarship GPA (SGPA) will be calculated for students who have completed a minimum of 30 credit hours of work over two terms within the preceding academic year. The Scholarship GPA will include all eligible courses attempted during this time period. Please note that the Scholarship GPA and the Seasonal GPA normally differ.

The Scholarship GPA, expressed to two decimal places, does not show on a student’s transcript.

G. Renewable Scholarships

Unless otherwise advised, a SGPA of 3.70 is required to maintain a renewable scholarship. Students must complete a full course load (a minimum of 30 credit hours) over two terms within the previous academic year and achieve a minimum SGPA of 3.70 to be considered eligible for renewal. Co-op students who are on a work term during the calendar year, must also complete 30 credit hours over two terms to be eligible. Students completing two work terms within one academic year must complete a minimum of 30 credit hours during their one academic term and achieve a minimum term SGPA of 3.70 to be considered. In those cases where students have taken more than 30 credit hours, assessment is based on all courses taken within the term(s) being assessed. Transfer credits do not count towards the credit hours reviewed for scholarship assessment.

Students who fail to re qualify for their renewable scholarship will be notified in writing or via email. If a student achieves the required 3.70 SGPA in the next academic year, or in any academic year within four of the original offer, the scholarship may be reinstated.

B. Portability of Undergraduate Scholarships

Many, but not all, entrance and in-course scholarships are portable among all Dalhousie undergraduate programs. Please contact the Awards Office prior to changing programs.

C. Scholarship Payments and Rebates

To receive scholarship funds, a student must be registered at least as a full-time student (minimum nine credit hours for degree students, six credit hours for technical students) at Dalhousie during the term(s) in which they are receiving the funds. Students registered in Graduate Studies, Medicine, Law and Dentistry (with the exception of Diploma in Dental Hygiene students), are ineligible to receive in-course scholarships or renew an existing scholarship. These faculties have their own awards programs. Insofar as scholarships, bursaries and governmental or Trust Deed should otherwise permit. (The University of King’s College has its own awards program.)

D. Award Duration

Dalhousie offers both renewable and non-renewable Entrance Awards. Non-renewable awards are held for one year. Renewable entrance awards are typically renewable for a maximum of four years. Holders of renewable awards are notified of either the renewal or the non-renewal of their awards. Please note that holders of renewable scholarships are NOT also entitled to hold Dalhousie in-course scholarships. (Please also refer to section “Graduation and Renewable or In-Course Scholarships” on page 601.)

E. Eligible Courses for Scholarship Assessment

The Registrar’s Office (Awards) considers those Dalhousie courses which are taken for credit in a designated degree/ diploma program during the academic year (or term in the Co-op program) as eligible courses for scholarship assessment. Correspondence courses are considered for scholarship purposes.

F. Scholarship GPA Calculation

The Scholarship GPA (SGPA) will be calculated for students who have completed a minimum of 30 credit hours of work over two terms within the preceding academic year. The Scholarship GPA will include all eligible courses attempted during this time period. Please note that the Scholarship GPA and the Seasonal GPA normally differ.

The Scholarship GPA, expressed to two decimal places, does not show on a student’s transcript.

G. Renewable Scholarships

Unless otherwise advised, a SGPA of 3.70 is required to maintain a renewable scholarship. Students must complete a full course load (a minimum of 30 credit hours) over two terms within the previous academic year and achieve a minimum SGPA of 3.70 to be considered eligible for renewal. Co-op students who are on a work term during the calendar year, must also complete 30 credit hours over two terms to be eligible. Students completing two work terms within one academic year must complete a minimum of 30 credit hours during their one academic term and achieve a minimum term SGPA of 3.70 to be considered. In those cases where students have taken more than 30 credit hours, assessment is based on all courses taken within the term(s) being assessed. Transfer credits do not count towards the credit hours reviewed for scholarship assessment.

Students who fail to re qualify for their renewable scholarship will be notified in writing or via email. If a student achieves the required 3.70 SGPA in the next academic year, or in any academic year within four of the original offer, the scholarship may be reinstated.

B. Portability of Undergraduate Scholarships

Many, but not all, entrance and in-course scholarships are portable among all Dalhousie undergraduate programs. Please contact the Awards Office prior to changing programs.

C. Scholarship Payments and Rebates

To receive scholarship funds, a student must be registered at least as a full-time student (minimum nine credit hours for degree students, six credit hours for technical students) at Dalhousie during the term(s) in which they are receiving the funds. Students registered in Graduate Studies, Medicine, Law and Dentistry (with the exception of Diploma in Dental Hygiene students), are ineligible to receive in-course scholarships or renew an existing scholarship. These faculties have their own awards programs. (The University of King’s College has its own awards program.)

D. Award Duration

Dalhousie offers both renewable and non-renewable Entrance Awards. Non-renewable awards are held for one year. Renewable entrance awards are typically renewable for a maximum of four years. Holders of renewable awards are notified of either the renewal or the non-renewal of their awards. Please note that holders of renewable scholarships are NOT also entitled to hold Dalhousie in-course scholarships. (Please also refer to section “Graduation and Renewable or In-Course Scholarships” on page 601.)

E. Eligible Courses for Scholarship Assessment

The Registrar’s Office (Awards) considers those Dalhousie courses which are taken for credit in a designated degree/ diploma program during the academic year (or term in the Co-op program) as eligible courses for scholarship assessment. Correspondence courses are considered for scholarship purposes.

F. Scholarship GPA Calculation

The Scholarship GPA (SGPA) will be calculated for students who have completed a minimum of 30 credit hours of work over two terms within the preceding academic year. The Scholarship GPA will include all eligible courses attempted during this time period. Please note that the Scholarship GPA and the Seasonal GPA normally differ.

The Scholarship GPA, expressed to two decimal places, does not show on a student’s transcript.

G. Renewable Scholarships

Unless otherwise advised, a SGPA of 3.70 is required to maintain a renewable scholarship. Students must complete a full course load (a minimum of 30 credit hours) over two terms within the previous academic year and achieve a minimum SGPA of 3.70 to be considered eligible for renewal. Co-op students who are on a work term during the calendar year, must also complete 30 credit hours over two terms to be eligible. Students completing two work terms within one academic year must complete a minimum of 30 credit hours during their one academic term and achieve a minimum term SGPA of 3.70 to be considered. In those cases where students have taken more than 30 credit hours, assessment is based on all courses taken within the term(s) being assessed. Transfer credits do not count towards the credit hours reviewed for scholarship assessment.

Students who fail to re-qualify for their renewable scholarship will be notified in writing or via email. If a student achieves the required 3.70 SGPA in the next academic year, or in any academic year within four of the original offer, the scholarship may be reinstated.
Students registered in Graduate Studies, Medicine, Dentistry (with the exception of Diploma in Dental Hygiene students), or Law are ineligible to receive in-course scholarships or renew an existing scholarship.

**H. Qualifying for In-Course Scholarships**

All undergraduate Dalhousie students not on a renewable scholarship, ineligible programs in the participating faculties, who have completed a full course load (a minimum of 30 credit hours) over two terms within the previous academic year and achieved a minimum SGPA of 3.70 will be considered eligible for in-course scholarships. Co-op students who are on a work term during the calendar year, must also complete 30 credit hours over two terms to be eligible. Students completing two work terms within one academic year must complete a minimum of 15 credit hours during their one academic term and achieve a minimum SGPA of 3.70 to be considered eligible. In these cases where students have taken more than 30 credit hours, assessment is based on all courses taken within the term(s) being assessed. Transfer credits do not count towards the credit hours reviewed for scholarship assessment.

Students registered in Graduate Studies, Medicine, Dentistry (with the exception of Diploma in Dental Hygiene students), or Law are ineligible to receive in-course scholarships or renew an existing scholarship.

**I. International Exchanges**

Students who have permission to study for one or two terms outside of Canada in an approved exchange program, and are considered to be full-time (normally 30 credit hours), can be considered eligible for in-course or renewable scholarship assessment. Students who hold a Dalhousie scholarship and are planning on studying abroad and are advised to contact the Assistant Registrar (Awards) with specific questions.

**J. Scholarship Assessment**

Students on renewable scholarships will be assessed for renewal in either June or September depending on completion of two academic terms. All other undergraduate students are assessed for in-course scholarships in June or September depending on completion of two academic terms.

**K. Changing Degree Programs or Faculties**

Changing degree programs or faculties can have implications for scholarship consideration. Scholarship holders considering degree changes should consult the Registrar’s Office - Awards. Scholarship holders considering taking a reduced course load should consult the Registrar’s Office - Awards before dropping courses. Students must complete a minimum of 30 credit hours over two terms within the academic year to qualify for renewal of their scholarships or an in-course scholarship. Also refer to sections G and H.

**L. Reduced Course Load and Retention of Scholarship**

Scholarship holders considering taking a reduced course load should consult the Registrar’s Office - Awards before dropping courses. Students must complete a minimum of 30 credit hours over two terms within the academic year to qualify for renewal of their scholarships or an in-course scholarship. Also refer to sections G and H.

**M. Record of Scholarships**

Awards are recorded on academic transcripts. The University retains the right to reassess the source funding of a student’s scholarship as circumstances may warrant (but there would be no reduction in the amount).

**N. Graduation and Renewal or In-Course Scholarships**

If you hold a renewable scholarship and you choose to graduate earlier than originally expected, and then you decide to return to upgrade your degree to a four-year degree, you must submit a request to upgrade your scholarship for the final year. In addition, if you graduate and then decide to upgrade your degree, you cannot be assessed for an in-course scholarship until a further 30 credit hours over two terms within the same academic year is completed and a minimum SGPA of 3.70 is achieved.

**O. Transfer Students**

With the exception of the First Nations and Indigenous Black Students Entrance Scholarships, transfer students are ineligible for scholarships in the year of transfer. After one full year, students would be considered on the same basis as other students for in-course awards. Please refer to section H. Qualifying for In-Course Scholarships.

**P. Taxation**

As long as you are a registered full or part-time student, you are not required to claim financial awards (i.e. scholarships, bursaries) as income on your taxes.

**Q. Withdrawing**

Award funds are credited to your student account with the expectation that you will remain registered at Dalhousie as at least a full-time student (minimum nine credit hours for degree students or six credit hours for technical students) within the applicable term. Therefore, if you reduce your course load or withdraw, these funds are expected to be returned to the University. However, depending on the time of the withdrawal, you may be entitled to retain a prorated portion of the scholarship. Contact us prior to your withdrawal and we can review your specific circumstances.

**R. Scholarship Appeals**

The deadline to appeal a scholarship decision for an entrance/in-course/renewable scholarship or entrance/bursary is October 31.

Students may appeal under the following grounds:

- extraordinary or compassionate circumstances;
- unfair scholarship decisions under the circumstances; and/or
- inconsistent scholarship decisions compared to other office decisions.

Students must submit their appeal, in writing, to the Assistant Registrar, Awards, in the Registrar’s Office, by the deadline noted above. The Letter should clearly outline the grounds for appeal and the remedy being sought. Students should include documentation, if applicable, to support the basis of their appeal. The decision of the Appeals Committee is final.

**S. Entrance Awards**

Please note: Students entering the Faculty of Agriculture should refer to “Entrance Awards,” section “B. Faculty of Agriculture” for available entrance scholarships.

Please note: Students entering third year Engineering (including students entering from Associated Universities) should refer to “In-Course Scholarships,” section “F. Faculty of Engineering” for available scholarships.

Applicable to those scholarships administered by the Registrar’s Office. Selection criteria may be different for those administered by individual faculties/schools/departments. Scholarships are available at the discretion of the Dean or Chair of the Department or School.

1. Entrance awards are available to students applying to Dalhousie directly from high school. Transfer students are not eligible for entrance scholarships with the exception of the First Nations and Indigenous Black Students Scholarships.

Entrants coming from Year II of a CEGEP are considered to be transfer students.

2. To be considered for entrance awards, applicants must submit a completed Dalhousie application for admission, a scholarship application including supporting documents (available through DalOnline), and an official transcript, to the Registrar’s Office by March 15th.

3. Students must be admitted, with a minimum 80% admission average (or 26 predicted points for 12th diploma candidates), to one of the following faculties to be eligible for entrance award consideration: Architecture and Planning, Arts and Social Sciences, Computer Science, Engineering, Health Professions, Management or Science. See Section B for details on Agriculture awards.

4. Students are first assessed for grades-based entrance scholarships using their first term final grades or midterm grades in the case of non-semestered schools.

5. An admission average is then calculated using the grades of the five courses required for admission to the applicable program.

6. An adjusted average is then calculated for all students which can add up to two additional points onto the admission average. Students can receive up to one additional point for taking/courting AP or IB level courses and up to another additional point for taking/completing more than the required five university-preparatory courses.

7. Applicants will be evaluated for entrance awards based on some or all of the following criteria: academic merit, extra-curricular activities, financial need, initiative to fund your own education, and leadership experience. For more information visit moneymatters.dal.ca.
Awards

A. Entrance Scholarship Funds

It is University practice to distribute scholarships among as many students as possible.

1. Entrance Awards (application required)

Three awards marked with an asterisk (*) are not administered by the Registrar’s Office. All awards administered by the Registrar’s Office require a minimum admission average to a Dalhousie program of 80% and a General Entrance Award Application submitted by March 15th unless otherwise stated to be eligible.

A. Entrance Scholarship Funds

- **A. Entrance Scholarship Funds**

  - **Albert Holmes Bursary**
    - Awarded to a student from Pictou County based on academic achievement, community involvement and financial need.
  - **5th Avenue Capital Corporation Bursary**
    - A $2,500 bursary to provide financial assistance to a student with demonstrated financial need and good academic standing entering university directly from high school.
  - **Sandy and Barbara Billishfield Bursary**
    - This endowed fund provides renewable bursaries annually to students entering Dalhousie with permanent disabilities and demonstrated financial need. The maximum value of bursaries may vary from year to year. To be considered, students must submit medical documentation regarding the nature of their disability, and a complete General Entrance Award Application.
  - **The Frank Hugh Bell Endowment Scholarship in Science**
    - This scholarship was established by a bequest from the estate of Barbara Bell who taught at Dalhousie in 1923 as a music student. This scholarship is awarded annually to honor her father, the late Mr. Francis Hugh Bell who was one of Dalhousie’s earliest graduates.
  - **The Burst Scholarship**
    - A scholarship valued at $24,000 ($6,000 per year) was established by Mr. David Burst with the intention of encouraging scholastic achievement by providing an incentive to capable high school students. Candidates for the Burst Scholarship must be graduating from Cole Harbour District High School in Nova Scotia and be eligible for admission to the first year of an undergraduate program leading to a first degree at Dalhousie University. They must also intend to pursue a program of full-time studies at Dalhousie. A nomination for a Burst Scholarship will not interfere with consideration of the nominee for other University scholarships. A student may not, however, hold a Burst Scholarship and another Dalhousie scholarship at the same time. Students must be nominated by their school to be considered for this scholarship, and should contact the Guidance Office for more information.
  - **George Barnes Scholarship**
    - The scholarship was established by Mary Barnes and Grace Barnes in memory of their father, George Barnes, to support Dalhousie students wishing to study in England as part of their academic program. Scholarships are awarded on the basis of academic and extracurricular excellence, financial need, and international experience.
    - Scholarships are open to Canadian students accepted into the First Year Study Abroad Program at the International Study Centre (ISC), at Heriot Watt Castle, England. Scholarship value: up to $5,000. Interested students should complete an application no later than one month prior to departure, available from the International Centre.
  - **R. Stanley Cumming Scholarship**
    - Established through a bequest from the Estate of Marion H. Cumming, in memory of her late husband, Professor R. Stanley Cumming, BA 1935. This scholarship, valued at $20,000 ($5,000 per year), is awarded to a student entering the Bachelor of Arts.
  - **Dalhousie Alumni/Leadership Association Scholarships**
    - A number of these scholarships, ranging in value from $1,000 to $2,000, are open to entering students who have achieved a good scholastic record in high school. Candidates must have played a leadership role in extracurricular activities such as community service, student government, athletics, or the visual or performing arts.
  - **Frank R. Davis Memorial Scholarships**
    - These scholarships are made possible by a fund established by Mrs. Davis in memory of her late husband, the Hon. Frank R. Davis, Minister of Public Health in the government of Nova Scotia and a graduate of this University. The scholarship will be awarded to deserving graduates of Bridgewater High School, on the nomination of the Supervisor of Schools and the Senior High School Staff. In selecting candidates, the governing considerations will be scholastic standing, usefulness of purpose, and interest in the common good.

**DSU: Accessibility Bursary**

The Dalhousie Student Union established this $1,000 renewable bursary assistance for an entering student with a permanent disability and demonstrated financial need. This bursary is administered and awarded in combination with the Johnson Foundation Bursary. The recipient will typically receive $1,000 from the DSU Bursary and an additional $1,500 annually from the Johnson Foundation Bursary for a combined annual amount of $2,500. To be considered, students must submit medical documentation regarding the nature of their disability.

Jeff D. & Mortha Edwards Scholarship for Black Canadian & Bermudian Students

Jeff Edwards was 21 in 1910 when he and many other blacks left Oklahoma for Canada seeking an escape from segregation and prejudice in the American South. He and his wife Martha homesteaded as pioneers at Anchor Valley, Alberta where they raised 10 children and contributed enormously to the community. Mr. Edwards embraced his new citizenship with pride, and when he died in 1973 at the age of 90, was remembered as a proud Canadian citizen who epitomized the spirit of black pioneers who settled the Canadian West. While Hugh McAlpine established this scholarship to honour the memory of Jeff & Mortha Edwards, he also dedicated it to his late father who in the late 1940's in a small northeastern Alberta town spoke to his sons of “a fine gentleman by the name of Mr. Jeff Edwards.” This scholarship, valued at $8,000 ($2,000 per year), is awarded to an entering student with preference to Canadian students of Black African descent (second preference to native Black Bermudian students). Scholarships will be awarded on the basis of financial need and citizenship.

Enormo Radio Group Scholarship

Two $2,000 scholarships will be awarded to students entering a Music degree program. Students must demonstrate artistic excellence and a commitment to performing arts in the community. To be eligible, students must be Canadian citizens or landed immigrants. Administered by the Fountain School of Performing Arts.

Facilities Management Employee Scholarship

Established by the Department of Facilities Management employees at Dalhousie, this scholarship supports up to two entering students each year who are children, grandchildren or spouses of Facilities Management Employees. Selection is based on financial need and community involvement.

Fairfax Financial Holdings Limited Entrance Award

Two renewable awards of $20,000 ($5,000 per year) each, are awarded annually to the most worthy candidates entering an undergraduate program. The scholarships were established to encourage scholastic achievement by providing an incentive to capable high school students who wish to obtain a university education and who might otherwise be prevented due to the cost of attending the university. Candidates must be Canadian citizens or landed immigrants. Administered by the Fountain School of Performing Arts.

Fairfax Financial Holdings Limited Entrance Award

Two renewable awards of $20,000 ($5,000 per year) each, are awarded annually to the most worthy candidates entering an undergraduate program. The scholarships were established to encourage scholastic achievement by providing an incentive to capable high school students who wish to obtain a university education and who might otherwise be prevented due to the cost of attending the university. Candidates must be Canadian citizens or landed immigrants. Administered by the Fountain School of Performing Arts.

First Nations & Indigenous Black Students Scholarships

Ten renewable entrance scholarships of $12,000 ($3,000 per year) each are available to First Nations and Indigenous Black students, who are residents of Nova Scotia, New Brunswick or Prince Edward Island, and are entering Dalhousie for the first time. Scholarships are available to students who are applying directly from high school as well as those who have attended another post-secondary institution. Scholarships will be awarded on the basis of a student’s financial need and academic standing.

Forgh Family Nova Scotia Undergraduate Scholarship

A Dalhousie Law graduate established this scholarship in support of black high school students from Nova Scotia wanting to pursue post secondary education at Dalhousie. This is one of our highest valued scholarships for entering undergraduates at a value of up to $10,000 per year to cover tuition, housing and books; recipients receive up to $8,000 over four years. One entering student is selected each year based on academic excellence, financial need and demonstrated participation in extracurricular activities, preferably leadership, and a social conscience within his or her community.
International Baccalaureate (IB) Scholarships

An endowment has been established by Frederick S. Fountain for students of Atlantic Canada who have demonstrated all around distinction. Preference is given to students in the Faculty of Arts and Social Sciences. These scholarships are valued at $13,000 ($8,000 per year).

Marjorie Manning Foundation Scholarships

Two non-renewable entrance scholarships are awarded to students from Atlantic Canada enrolling in the Faculty of Management who have demonstrated a high level of academic achievement and financial need.

C. D. Howe Scholarships in Engineering

The C. D. Howe Memorial Foundation has established an endowment to provide a scholarship of $5,000 to a student who is entering any undergraduate program offered by the Faculty of Computer Science. The student will receive $3,000 upon entering the program and will receive the remaining $2,000 at the beginning of the second year of the program.

Rowland C. Fraser Scholarships in Business Administration

Established by Mrs. Marie Frazee, and family, to honour the memory of her late husband Dr. Rowland Frazee (BComm 1948, LLD 1980). Dr. Frazee was an outstanding alumnus of Dalhousie University and a business leader in Canada for many decades. He joined the Royal Bank of Canada in 1939 as a bank teller and rose to the position of Chairman and CEO in 1980. He attended Dalhousie University following his overseas service in World War II and rejoined the bank in 1946. He retired in 1986 living in Saint Andrews, N.B. From 2001 until his passing in the fall of 2007, two scholarships of $3,000 each are awarded annually to students entering an undergraduate program within the Faculty of Management.

C. D. Howe Scholarships in Business Administration

To students entering the Bachelor of Commerce program.

R. C. Fraser Family Scholarship

Robert Clifford Fraser (or R. C., as he was known) was born in Pictou County, attended New Glasgow High School and graduated with a Bachelor of Commerce from Dalhousie in 1952. He received his CA designation in 1958 and dedicated many of his working years to Nova Scotia Power, both in Pictou County and Halifax. R. C.’s family is of Dalhousie span many years and he enjoyed his time here tremendously. This scholarship is offered annually to a Nova Scotia Education Centre, New Glasgow graduate who is entering the Bachelor of Commerce program.

Barbara & James A. McNabb Scholarship

This scholarship, valued at $8,000 ($2,000 per year), was established in 1912. They lived their entire lives in Pictou County. A local businessman, Jim McNabb and his wife, Marjorie Manning, established a scholarship to provide a $16,000 ($4,000 per year) renewable bursary to entering high school students. Preference is given to students from Atlantic Canada who are the first in their family to attend a post-secondary institution.

Constance “Teak” McKibbin Memorial Bursary

Established by Reginald and Anne T. Lockward of Liverpool, Nova Scotia. Up to ten renewable scholarships valued at $16,000 ($4,000 per year), plus a number of non-renewable scholarships are awarded annually. Candidates for Lockward Memorial Scholarships must be graduates of a high school in Nova Scotia and be eligible for admission to the first year of an undergraduate course of study, leading to a first degree at Dalhousie University. Preference will be given to students in Queen’s County. Students will be selected on the basis of academic standing, character and financial need. Recipients of non-renewable scholarships may have an opportunity to access further funding if later admitted to the Doctor of Medicine degree at Dalhousie.

The A. Murray McNabb Scholarship

The Scots North British Society has established an annual scholarship of $1,000 which is open to a student entering Dalhousie from Cradle High School. The Selection Committee will consider candidates on the criteria of academic ability, financial need and leadership. The criteria are weighted equally. The late Dr. MacKay was chairman of the School Board at the time when Queen Elizabeth High School was constructed.

General Entrance Award Application

To be considered, students must submit medical documentation regarding the nature of their disability.

International Baccalaureate (IB) Prices

The Government of Canada enrolling in the Faculty of Management who have demonstrated a high level of academic achievement and provides financial support to a student entering the Bachelor of Commerce. First preference is given to students entering Dalhousie directly from a high school within Greater Moncton, New Brunswick.

Barbara McNabb Scholarship

Barbara McNab was born in Toronto, Nova Scotia in 1919 and her husband died in 1912. They lived their entire lives in Pictou County. A local businessman, Jim McNabb and his wife, Marjorie Manning, established a scholarship to provide a $16,000 ($4,000 per year) renewable bursary to entering high school students. Preference is given to students from Atlantic Canada who are the first in their family to attend a post-secondary institution.

Constance “Teak” McNabb Memorial Bursary

A $16,000 ($4,000 per year) renewable bursary is awarded each year to a student entering Dalhousie with demonstrated financial need. Preference is given to students from Atlantic Canada who are the first in their family to attend a post-secondary institution.

Harrison McCain Scholarships

The Harrison McCain Foundation fund provides numerous renewable scholarships of $16,000 ($4,000 per year) to entering high school students. Scholarships are awarded to students with demonstrated financial need, a recognized initiative to funding their own education and possess strong leadership abilities. Please submit a complete Harrison McCain Scholarship application, available online at monniesetc dal.ca, by March 1.

Helen C. McDowell Foundation Memorial Scholarship

Up to two scholarships of $5,000 each are available to students who have been a resident of Prince Edward Island for at least the previous three years. Preference will be awarded to a student entering a Bachelor of Arts. Applicants will be assessed on academic achievement, leadership and financial need.

Constance “Teak” McKibbin Memorial Bursary

The A. Murray McNabb Scholarship has been established by The Scots North British Society for residents of Atlantic Canada enrolling in the Faculty of Management who have demonstrated all around distinction. Preference is given to students in the Faculty of Arts and Social Sciences. These scholarships are valued at $13,000 ($8,000 per year).

Marjorie Manning Foundation Scholarships

Two non-renewable entrance scholarships are awarded to students from Atlantic Canada enrolling in the Faculty of Management who have demonstrated a high level of academic achievement and financial need.

C. D. Howe Scholarships in Engineering

The C. D. Howe Memorial Foundation has established an endowment to provide a scholarship of $5,000 to a student who is entering any undergraduate program offered by the Faculty of Computer Science. The student will receive $3,000 upon entering the program and will receive the remaining $2,000 at the beginning of the second year of the program.

Rowland C. Fraser Scholarships in Business Administration

Established by Mrs. Marie Frazee, and family, to honour the memory of her late husband Dr. Rowland Frazee (BComm 1948, LLD 1980). Dr. Frazee was an outstanding alumnus of Dalhousie University and a business leader in Canada for many decades. He joined the Royal Bank of Canada in 1939 as a bank teller and rose to the position of Chairman and CEO in 1980. He attended Dalhousie University following his overseas service in World War II and rejoined the bank in 1946. He retired in 1986 living in Saint Andrews, N.B. From 2001 until his passing in the fall of 2007, two scholarships of $3,000 each are awarded annually to students entering an undergraduate program within the Faculty of Management.

General Dynamics Canada Corporate Partners Scholarship

The General Dynamics Canada Corporate Partners Scholarship in the amount of $3,000 is awarded to a student who is entering any undergraduate program offered by the Faculty of Computer Science. The student will receive $3,000 upon entering the program and will receive the remaining $2,000 at the beginning of the second year of the program.

Applicants are required to have completed high school education in Nova Scotia and have passed grade 12 university preparatory class in any Nova Scotia high school with an average of 80%, and has demonstrated initiative through volunteering and extra-curricular activities.

Milton G. Green Memorial Scholarship

This scholarship, valued at $8,000 ($2,000 per year), was established in 1975 by Bowers Manning in memory of the company’s former President, Milton G. Green. Eligible students must have lived in the western area of Nova Scotia for at least three years prior to admission. This scholarship is not awarded every year.

C. D. Howe Scholarships in Engineering

The C. D. Howe Memorial Foundation has established an endowment to provide a scholarship of $5,000. The scholarship is open to matriculants from Nova Scotia high schools who have achieved high academic standing and who are enrolled full-time in the Bachelor of Engineering program. Where candidates are deemed to be of equal merit, preference will be extended to female students. The scholarship is renewable on an annual basis for the duration of the program.

Denton Hurdles Scholarship

This scholarship was established in memory of Denton Gordon Clifford Hurdles, born in Bermuda in 1937, who graduated from Dalhousie in 1959 with a Bachelor’s Degree in Physical Education. He then returned to Bermuda and taught at Warwick Academy until his death in 1983. One or more scholarships of at least $2,000 each, are available to Bermudian citizens who are entering Dalhousie directly from high school. First preference will be given to students from Warwick Academy who are entering the School of Health and Human Performance, BSc (Health Promotion), BSc (Kinesiology) or BSc (Kinesiology).

International Baccalaureate (IB) Scholarships

Renewable scholarships are offered to top students entering from high school who studied the International Baccalaureate program.

International Baccalaureate (IB) Prices

Please submit a complete Harrison McCain Scholarship application, available online at monniesetc dal.ca, by March 1.
Awards

Lottie M. Morrison Scholarship* This is an entrance scholarship intended to assist one student beginning the Bachelor of Science (Nursing) program who has the intention of furthering her/his studies in the area of mental health. Contact the School of Nursing for further information.

J & W Murphy Scholarships This scholarship fund was established by the J & W Murphy Foundation to provide renewable scholarships for Nova Scotia residents entering full-time undergraduate programs at Dalhousie University. Six renewable scholarships of $40,000 ($10,000 per year) are awarded annually to worthy candidates based on community involvement, academic excellence and financial need. First preference will be given to students from Queens County and then to residents of the rest of Nova Scotia. Consideration will also be given to students who are part of an immediate family to attend university. In addition, several one-time scholarships of $6,000 are awarded each year to top candidates based on the criteria outlined above.

Richard & Melda Murray Engineering Scholarships This scholarship provides the financial support for two Jamaican citizens to enter and complete their Bachelor of Engineering degrees at Dalhousie. Students may enter the Faculty of Engineering directly from high school or transferring from another institution. Each scholarship will cover the cost of tuition and housing to a maximum of $22,000 per year, for the duration of each recipient’s degree.

Evelyn Negus Scholarship in Nursing This scholarship is awarded annually to a student(s) entering the Bachelor of Science (Nursing). First preference will be given to mature students and to aboriginal peoples (specifically members of the Mi’Kmaq community).

W. M. Nelson Scholarship Under the Will of the late Mr. William M. Nelson of Tatamagouche, funds have been made available to provide a scholarship to Dalhousie students attending North Colchester High School.

Nova Scotia Power Inc. Scholarship Since 1993, Nova Scotia Power Inc. has sponsored an annual scholarship in the amount of $1,500 for full-time study in an undergraduate degree program. The scholarship will be renewable for up to three or four years depending upon the duration of the undergraduate program provided that the student maintains the required academic standing. Recipients are to be Canadian citizens (or landed immigrants) and residents of Nova Scotia for at least three years.

The School of Nursing BScN Scholarship This entrance scholarship is awarded to the student(s) entering the Dalhousie University Basic BScN program with the highest high school academic average.

The School of Nursing BScN Entrance Scholarship for Non-Traditional Students* This entrance scholarship is awarded to the student with the highest academic standing who has come to the Basic BScN program either directly from high school or after a full year of university. Assessment is made by the School of Nursing. Application not required.

School of Nursing BScN Entrance Scholarship for Students with Prior University Experience* This entrance scholarship is awarded to the incoming student in the Dalhousie University Basic BScN program with previous university experience and the highest cumulative GPA. Assessment is made by the School of Nursing.

Warren Optivie Scholarships This endowment offers two scholarships of $16,000 ($4,000 per year) to students entering the Bachelor of Commerce program. The primary consideration in awarding the scholarship shall be outstanding academic potential and performance and second consideration shall be financial need. Preference will be given to Nova Scotia applicants for at least one scholarship.

Edward A. Perkins Memorial Bursary Florence Perkins established the $1,000 renewable bursary assistance in memory of her son, Edward A. Perkins. This bursary is available to entering Dalhousie students with a permanent disability demonstrating financial need, with preference to students entering the Faculty of Science. This bursary is administered and awarded in combination with the Johnson Foundation Bursary. The recipient will typically receive $1,000 from the Edward A. Perkins Memorial Bursary and an additional $1,500 annually from the Johnson Foundation Bursary for a combined annual amount of $2,500. To be considered, students must submit medical documentation regarding the nature of their disability.

Poole Family Scholarship The Poole Family Scholarship, valued at $3,000 per year and renewable for up to three additional years, is funded by a generous annual gift from the charitable trust established by Mr. Terry Poole, BSc ’59, who now resides in Calgary, Alberta. The scholarship will be awarded annually to a full-time undergraduate student entering into their first year of study in any program. To be eligible, candidates must demonstrate financial need and scholarship standing. Preference will be given to candidates who reside in Newfoundland and Labrador, Atlantic Canada, and Alberta.

The Hugh J. Potter Scholarship No endowment has been established to provide a scholarship to an entering Commerce student who has demonstrated a high level of academic achievement. First preference will be given to residents from Digby County who quickly based on their academic record. The scholarship honours the memory of Joseph Hugh Potter, a native of Digby County, who showed himself to be an exceptional initiators and developers of financial and commercial activity throughout this province in the fields of insurance, shipping, transportation and manufacturing.

Lawrence and Mildred Ridgway Scholarship* This scholarship of $5,000 is awarded on the basis of performance excellence to a student entering university for the first time directly from high school into a course of study leading to an undergraduate degree in music performance. It was established by Karen Woolhouse and Judith Wells in memory of their parents, who lived in Halifax for many years, enjoyed music, and were proud that their two daughters graduated from Dalhousie. Administered by the Faculty of Performing Arts.

Cicero T. Ritchie and Hazel Robertson Scholarship This scholarship was created at the bequest of Hazel Robertson in memory of her husband, a Dalhousie graduate. This $1,500 entrance renewable scholarship is awarded each year to a student from Dartmouth High School entering in the Bachelor of Science. The scholarship is renewable to a maximum of four years provided a SGPA of 3.3 is maintained while carrying a full course load.

Seymour Schulich Scholarships Seymour Schulich, one of Canada’s leading philanthropists, established this scholarship fund in 2018 to honour his wife Tanna Goldberg Schulich and her family. The fund provides four renewable scholarships valued at $30,000 each for students entering the Faculty of Computer Science; two based on academic achievement and two based on community involvement. In addition, several one-time scholarships of $5,000 are awarded to students entering the Faculty of Computer Science or Science based on academic achievement and community involvement.

Shad Valley Scholarships Two renewable scholarships of $16,000 ($4,000 per year) are offered to top high school applicants who have participated in Shad Valley.

Smurfett Memorial Trust Scholarships The J. D. Smurfett Memorial Trust established a scholarship endowment fund in 1978 to provide assistance with the costs of attendance at Dalhousie University. The University’s fund is independent of any other such trusts. Candidates must fulfill the following conditions: a) be coming directly to Dalhousie from high school, b) be undertaking studies leading to their first baccalaureate degree and c) be a bona fide resident of the Shad Valley (in Halifax, Nova Scotia area) for at least three years prior to applying to Dalhousie. A candidate’s satisfaction of the residency requirement is confirmed by the J. D. Smurfett Trust Advisory Committee in Halifax. Subject to the availability of funds, these awards are renewable to the first degree (or four years maximum), based on SGPA of 2.1, with a full course load. Please note that the value of a holder’s scholarship will vary from year to year.

The Sligh Family Foundation Scholarship for African Students The Sligh Family Foundation Scholarship for African Students is a renewable scholarship valued at $25,000 per year and is funded by a generous gift by the Sligh Family Foundation. The scholarship will be awarded annually to a full-time undergraduate student who resides in Africa and is either entering into their first year or returning (current) year of studies in any program at Dalhousie
undergraduate. University. To be eligible, candidates must demonstrate financial need, hold good academic standing, and demonstrate involvement in their community.

Sigma Chi Leadership Award
The Sigma Chi Leadership Award recognizes the qualities of entering students who meet the standards of Sigma Chi membership, as described by the Jordan Standard: being of high character, a student of fair ability, with ambitious purposes, a congenial disposition, possessed of good morals, having a high sense of honour, and a deep sense of personal responsibility.

Alecander Sinclair Scholarship
Under the Will of the late Honourable Marion Wm., the University received an endowment for the purpose of providing scholarships to qualifying students from St. Mary’s Municipality, Guysborough County, Nova Scotia. Candidates are recommended by St. Mary’s Rural High School in consultation with the Registrar’s Office – Awards.

Katherine (Norman) Sprovid Scholarship
In honour of the memory of Katherine (Norman) Sprovid, and to recognize academic and other achievements of students graduating from rural high schools in Nova Scotia entering the Bachelor of Arts Program in the Faculty of Arts and Social Sciences.

Stanley William Sprovid Scholarship
The purpose of this scholarship is to honour the memory of Stanley William Sprovid (BA 1951, MA 1953) and recognize the achievements of students entering Dalhousie from Halifans West High School. Mr. Sprovid became head of the Social Science Department at Halifans West in 1996 and was later named Vice Principal. This scholarship is awarded to a student entering the Faculty of Arts and Social Sciences or the Faculty of Management who has demonstrated high academic achievement and a well-rounded approach to their academic and extracurricular activities.

The L. C. Stewart Trust Fund
This fund from the Estate of George M. Stewart came as a trust fund. The annual income from which is to be used for L. C. Stewart Scholarships to qualifying students from St. Mary’s District in the County of Guysborough, Nova Scotia. Candidates are recommended by St. Mary’s Rural High School in consultation with the Registrar’s Office – Awards.

L. A. & Edith Upham Scholarship
A memorial scholarship established at $20,000 ($5,000 per year) has been established to recognize the long association of the Upham family with Dalhousie University. This scholarship is offered to a Nova Scotia high school graduating student enrolled in the Faculty of Arts and Social Sciences.

Marguerite J. Vernon Scholarship
A trust has been established under the Will of the late Marguerite Vernon whereby, from time to time, a scholarship will be assigned to Dalhousie University for an entering student.

Ann & Ian Vessey Scholarship
This endowment provides a scholarship to a student from Prince Edward Island entering any undergraduate program. Preference will be given to a student who is graduating from Charlottetown Rural High School. Both I. J. Vessey and Ann M. Vessey (nee Agnew) graduated from Charlottetown Rural High School in 1977.

F. Huene Wells Scholarship
This scholarship of $1,000 is awarded on the basis of performance excellence to a student entering university. The first time directly from high school into a course of study leading to an undergraduate degree in music performance. It was established by Judith Wells and Karen Woodhouse in memory of F. Huene Wells, a businesswoman in Halifax, who was interested in music and thought university education was important. Contact the Foundation School of Performing Arts for more information.

Walker Wood Foundation Science Bursary
The Walker Wood Foundation established this $14,000 ($4,000 per year) bursary in support of a student with demonstrated financial need who is entering the Faculty of Science at Dalhousie. Preference is given to students from high schools within Atlantic Canada.

Don Wright Scholarship of Excellence
This annual scholarship funded by the Lillian and Don Wright Foundations, supports outstanding students who are entering the Faculty of Performing Arts in a Music degree program. While preference shall be given to awarding the scholarship to one student per year, if no one student merits the awarding of the scholarship, the awarding committee has the authority to award two scholarships to students who have applied and been accepted to study Music within the School. Where there is more than one eligible candidate, preference shall be given to the candidate deemed to have the most merit as judged by a majority of the Music Department Scholarships Committee.

2. Endowments and Annual Givings
The following endowments and annual givings are used to fund a select number of our Dalhousie Entrance Award programs and are administered by the Registrar’s Office in November. Unless noted, applications are not required.

Robert Bruce Scholarships
The University is a beneficiary of a bequest from the late Robert Bruce of Quebec whereby a portion of the annual income is to be used for both entrance and in-course scholarships, and for bursaries.

James and Abbie Campbell Memorial Scholarships
A bequest from the late Eila Alma MacAulay of Halifax made provision for the establishment of the James and Abbie Campbell Memorial Fund. The purpose of this fund is to promote the University’s music program through scholarships in music. Academically sound students who have demonstrated competency in music will be selected by the Faculty of School of Performing Arts for one of several James and Abbie Campbell/Music Scholarships. Other music students will be selected on the basis of their overall academic standing by the Registrar’s Office. The fund also provides in-course scholarships.

Dalhousie Club of New York Scholarships
A fund for this purpose, established by the Dalhousie Club of New York and placed in the hands of the Board of Governors of the University, endows several scholarships open to students entering the Faculties of Arts and Social Sciences or Science from high school.

Ann McInnes Scholarships
The University received from the Estate of Julia A. McInnes a bequest to provide scholarships in memory of her husband, Dr. Emenuee Ann McInnes.

Dr. Mary G. Hickman Memorial Scholarship
Under the Will of Frances Rose Hickman, this scholarship fund was established in memory of her late daughter Mary Hickman, MD 1972. This fund provides scholarships to recognize academic excellence at Dalhousie.

Christine Irvine Memorial Scholarship
This endowment scholarship, awarded to students who have demonstrated academic excellence, was established by the family of Christine Irvine, former Dean of Women at Dalhousie. by her brother Leslie M. Irvine. First preference will be given to students from Bridgewater, second preference Antigonish Valley and third preference Nova Scotia.

Percy Bertram Jollota Scholarships
The fund also provides in-course scholarships.

Robert Bruce Scholarships
In honour of the memory of Katherine (Norman) Sprovid, and to recognize academic and other achievements of students graduating from rural high schools in Nova Scotia entering the Bachelor of Arts Program in the Faculty of Arts and Social Sciences.

Dr. Mary G. Hickman Memorial Scholarship
Under the Will of Frances Rose Hickman, this scholarship fund was established in memory of her late daughter Mary Hickman, MD 1972. This fund provides scholarships to recognize academic excellence at Dalhousie.

Christian Irvine Memorial Scholarship
This endowment scholarship, awarded to students who have demonstrated academic excellence, was established by the family of Christine Irvine, former Dean of Women at Dalhousie. by her brother Leslie M. Irvine. First preference will be given to students from Bridgewater, second preference Antigonish Valley and third preference Nova Scotia.

Percy Bertram Jollota Scholarships
The University received from the Estate of Julia A. McInnes a bequest to provide scholarships in memory of her husband, Dr. Emenuee Ann McInnes.

Dr. Mary G. Hickman Memorial Scholarship
Under the Will of Frances Rose Hickman, this scholarship fund was established in memory of her late daughter Mary Hickman, MD 1972. This fund provides scholarships to recognize academic excellence at Dalhousie.

Christine Irvine Memorial Scholarship
This endowment scholarship, awarded to students who have demonstrated academic excellence, was established by the family of Christine Irvine, former Dean of Women at Dalhousie. by her brother Leslie M. Irvine. First preference will be given to students from Bridgewater, second preference Antigonish Valley and third preference Nova Scotia.

Percy Bertram Jollota Scholarships
The University received from the Estate of Julia A. McInnes a bequest to provide scholarships in memory of her husband, Dr. Emenuee Ann McInnes.

Dr. Mary G. Hickman Memorial Scholarship
Under the Will of Frances Rose Hickman, this scholarship fund was established in memory of her late daughter Mary Hickman, MD 1972. This fund provides scholarships to recognize academic excellence at Dalhousie.

Christian Irvine Memorial Scholarship
This endowment scholarship, awarded to students who have demonstrated academic excellence, was established by the family of Christine Irvine, former Dean of Women at Dalhousie. by her brother Leslie M. Irvine. First preference will be given to students from Bridgewater, second preference Antigonish Valley and third preference Nova Scotia.

Percy Bertram Jollota Scholarships
The University received from the Estate of Julia A. McInnes a bequest to provide scholarships in memory of her husband, Dr. Emenuee Ann McInnes.

Dr. Mary G. Hickman Memorial Scholarship
Under the Will of Frances Rose Hickman, this scholarship fund was established in memory of her late daughter Mary Hickman, MD 1972. This fund provides scholarships to recognize academic excellence at Dalhousie.

Christian Irvine Memorial Scholarship
This endowment scholarship, awarded to students who have demonstrated academic excellence, was established by the family of Christine Irvine, former Dean of Women at Dalhousie. by her brother Leslie M. Irvine. First preference will be given to students from Bridgewater, second preference Antigonish Valley and third preference Nova Scotia.

Percy Bertram Jollota Scholarships
The University received from the Estate of Julia A. McInnes a bequest to provide scholarships in memory of her husband, Dr. Emenuee Ann McInnes.

Dr. Mary G. Hickman Memorial Scholarship
Under the Will of Frances Rose Hickman, this scholarship fund was established in memory of her late daughter Mary Hickman, MD 1972. This fund provides scholarships to recognize academic excellence at Dalhousie.

Christian Irvine Memorial Scholarship
This endowment scholarship, awarded to students who have demonstrated academic excellence, was established by the family of Christine Irvine, former Dean of Women at Dalhousie. by her brother Leslie M. Irvine. First preference will be given to students from Bridgewater, second preference Antigonish Valley and third preference Nova Scotia.

Percy Bertram Jollota Scholarships
The University received from the Estate of Julia A. McInnes a bequest to provide scholarships in memory of her husband, Dr. Emenuee Ann McInnes.

Dr. Mary G. Hickman Memorial Scholarship
Under the Will of Frances Rose Hickman, this scholarship fund was established in memory of her late daughter Mary Hickman, MD 1972. This fund provides scholarships to recognize academic excellence at Dalhousie.

Christian Irvine Memorial Scholarship
This endowment scholarship, awarded to students who have demonstrated academic excellence, was established by the family of Christine Irvine, former Dean of Women at Dalhousie. by her brother Leslie M. Irvine. First preference will be given to students from Bridgewater, second preference Antigonish Valley and third preference Nova Scotia.
Awards

3. A completed application for admission (and scholarship application with supporting documents if required) received by the Registrar's Office by March 1. See dal.ca/scholarships for an application form.

Participating high schools may each nominate one student and forward the application, upon which the award is based.

(B+), plus continued evidence of the qualities of character, leadership and service which the award is based. Scholarship averages are renewable on the achievement of a Grade Point Average of 3.30 per year for diploma programs). The scholarships will be awarded to students entering the first year of any program of study and are based on academic performance, financial need, leadership, and initiative to fund own education. These scholarships are open to Canadian high school graduates who are maintaining an 80% average in their senior year of high school. Application due date is March 1. See dal.ca/scholarships for an application form.

B. Faculty of Agriculture

A. Entrance Scholarships

Atlantic Scholars Awards (tuition and residence fees): $40,000 (approximate value based on tuition and residence accommodation). Atlantic Scholars Awards will provide tuition and residence fees (at shared-room rate, for as long as the recipient chooses to live in residence) for the length of the recipient's first diploma (up to two years) or degree (up to four years). The scholarship does not cover meals, books, and student fees. Students entering either technical or degree programs are eligible. Only those applicants who have achieved a minimum average of 85% on the courses required for admission shall be considered. Selection criteria include academic performance, geographic distribution, and extracurricular activity. The Atlantic Scholars Awards are tenable for a maximum of four years. Applications must be submitted via Dalhail on March 15.

Dean's Scholarship (international and residence fees): $35,000 (approximate value based on international differential fees and shared residence accommodation). Awarded to the top international applicant. Dean's Scholarships are tenable for a maximum of two years (technical students) or four years (degree students). Application not required.

Harrison McCain Scholarships: $16,000 ($4,000 per year renewable for three years for degree programs, $4,000 per year renewable for one year for diploma programs). The scholarships will be awarded to students entering the first year of any program of study and are based on academic performance, financial need, leadership, and initiative to fund own education. These scholarships are open to Canadian high school graduates who are maintaining an 80% average in their senior year of high school. Application due date is March 1. See dal.ca/scholarships for an application form.

Residence Scholarships:

- Guaranteed Entrance Scholarships: Scholarships valued at the shared-room rate of residence, each renewable for one year, may be awarded to outstanding applicants. No application required. Guaranteed Entrance Scholarships: students who have applied to the Faculty of Agriculture will automatically be considered for the following entrance scholarships based on academic performance. Awarding begins April 15.

High School Average Value

- 90% or higher $2,500
- 85% to 89.9% $1,500
- 80% to 84.9% $1,000

Predicted Points Value

- 36 or higher $2,500 renewable for a maximum of $10,000
- 33-35 $2,500 renewable for a maximum of $1,500
- 30-32 $2,000
- 28-29 $1,500
- 24-27 $1,000

IB Scholarships: IB diploma students who have applied to the Faculty of Agriculture will automatically be considered for the following entrance scholarships based on academic performance. Awarding begins April 15.

High School Average Value

- 80% to 84.9% $1,000
- 85% to 89.9% $1,500
- 90% or higher $2,500

Predicted Points Value

- 36 or higher $2,500 renewable for a maximum of $10,000
- 33-35 $2,500 renewable for a maximum of $1,500
- 30-32 $2,000
- 28-29 $1,500
- 24-27 $1,000

III. In-Course Awards

A. The Canadian Merit Scholarship Foundation

The program was started in 1999 to identify, recognize and reward well-rounded students who combine distinguished talents with character, leadership potential and a commitment to the community. In 1999, Dalhousie University became a participating member of those institutions where the CMSF National Awards (Lion Awards) are tenable. The scholarship consists of $8,000 (paid by the Foundation) and tuition (paid by the University), renewable to a total of four years of undergraduate study. The scholarships are renewable on the achievement of a Grade Point Average of 3.30 (B+), plus continued evidence of the qualities of character, leadership and service upon which the award is based. Participating high schools may each nominate one student and forward the requisite documents to the CMSF Awards Committee to be received by the November deadline.
Details of the process and criteria are available from your high school. Nominees must meet the admission requirements for Dalhousie University and the program which the student wishes to undertake.

IV. In-Course Scholarships
All undergraduate Dalhousie students not on a renewable scholarship, in eligible programs in the participating faculties, who have completed a full course load (at least 15 credit hours during their one academic term) and have a minimum GPA of 3.70 will be considered eligible for in-course scholarships. Students enrolled in a co-op program who are on a work term during the calendar year, must also complete 30 credit hours over two terms to be eligible. Students completing two work terms within one academic year must complete a minimum of 35 credit hours during their one academic term and achieve a minimum term GPA of 3.70 to be considered eligible. In these cases, if the student has not completed more than 30 credit hours, assessment is based on all courses taken within the term(s) being assessed. Transfer credits do not count towards the credit hours reviewed for scholarship assessment.

Students registered in the Faculty of Agriculture should refer to (page [108]) for in-course scholarship opportunities.

Students registered in Graduate Studies, Medicine, Dentistry (with the exception of Diploma in Dental Hygiene Students), or Law are ineligible to receive in-course scholarships or renew an existing scholarship.

Applicable to those scholarships administered by the Registrar's Office. Selection criteria may be different for those administered by individual faculties/schools/departments.

Please note that the automatic consideration is either for the renewal of an entrance renewable scholarship or for a one-year scholarship, but not both.

A. General - All Faculties

Golden Key International Honour Society
Dalhousie University has a participating chapter in the Golden Key International Society. The Golden Key Society is an academic honors society that recognizes the academic achievements of students. The society provides scholarships and leadership opportunities and career assistance to its student members. Students are invited to become members based upon criteria established by the society. For information please refer to the society's website: www.GoldenKeyGlobal.org.

Governor's Awards
In 1992, to mark the 125th anniversary of the founding of the Dalhousie Student Union, the Board of Governors established a set of awards to be known as Governor's Awards. Up to four awards can be made each year, for exceptional contributions or leadership opportunities to in-course scholarship opportunities.

Applicable to those scholarship opportunities administered by the Registrar's Office. Selection criteria may be different for those administered by individual faculties/schools/departments.

Please note that the automatic consideration is either for the renewal of an entrance prize or for a one-year prize, but not both.

A. General - All Faculties

Golden Key International Honour Society
Dalhousie University has a participating chapter in the Golden Key International Society. The Golden Key Society is an academic honors society that recognizes the academic achievements of students. The society provides scholarships and leadership opportunities and career assistance to its student members. Students are invited to become members based upon criteria established by the society. For information please refer to the society's website: www.GoldenKeyGlobal.org.

Governor's Awards
In 1902, to mark the 125th anniversary of the founding of the Dalhousie Student Union, the Board of Governors established a set of awards to be known as Governor's Awards. Up to four awards can be made each year, for exceptional contributions or leadership opportunities to in-course scholarship opportunities.

Applicable to those scholarship opportunities administered by the Registrar's Office. Selection criteria may be different for those administered by individual faculties/schools/departments.

Please note that the automatic consideration is either for the renewal of an entrance prize or for a one-year prize, but not both.
The W. Andrew Mackay Alumni Scholarship

The Dalhousie Alumni Association established an annual scholarship in honour of Dr. W. A. Mackay, a former president of the University. The scholarships are available to students who have demonstrated high academic standing (GPA of at least 3.30) and who have shown an excellence in qualities of leadership, citizenship and sportsmanship. The award is taxable for one year in the Faculty of Arts and Social Sciences, Architecture and Planning, Computer Science, Engineering, Health Professions, Management and Science. Candidates are considered by nomination by their Department or School in the fall of each year.

MacKenzie Trust Scholarships

According to the Estate of Thomas George MacDonald, a Trust Fund was established for Archibald F. MacKenzie, and later bequeathed to Dalhousie University to provide in-course scholarships.

Nicholas M. MacLeod Memorial Scholarship

Under the will of Eve Edith MacLeod, this scholarship fund was established in memory of her late husband, Dalhousian alumnus Nicholas W. MacLeod, for the purpose of funding entrance and in-course scholarships for students in the Faculty of Arts and Social Sciences.

The Hector McInnes Memorial Scholarships

In December 1937, an anonymous donor gave the University $50,000 for undergraduate scholarships as a memorial to the late Mr. Hector McInnes.

Malcom Mosher Memorial Scholarship

Under the will of Milton Louis Morse Mosher, this scholarship fund was established in the memory of her father, to award scholarships to students studying in the areas of Social Sciences, Business and Economics.

The George R. Robertson Phi Delta Theta Fraternity Scholarship

An endowment has been established to provide a scholarship to a student in full-time study in the third or subsequent years at Dalhousie University. The selection of the awardee is based on several factors including a minimum Grade Point Average of 3.00, demonstrated activity in the Phi Delta Chapter and financial need. Application required.

The Lois J. Robertson Scholarships

The University received a generous bequest from the Estate of the late Lois Robertson. This fund has been allocated to undergraduate scholarships.

Joseph Duncan Stewart Scholarships

A bequest to the University provides for a number of in-course scholarships.

The John L. and Glenna E. Towse Scholarships

Awarded to a student who is entering the third year of the BSc (Agr) program. Selection criteria include academic performance and leadership in student and community affairs. This scholarship is not available to students receiving other scholarships of higher value.

Ralph H. Armstrong Memorial Award

The family and friends of the late Ralph Hallett Armstrong award a memorial award to a student who has successfully completed a first year of study at the Faculty of Agriculture. Former or current 4-H club members from Kings or Annapolis Counties in Nova Scotia are eligible. Selection is based on financial need and involvement in school, athletic and/or community organizations.

Associate Dean’s Scholarship

Awarded to a final year BSc (Ag) student based on academic merit.

Atlantic Council of Crop Life Canada Awards

Two awards are awarded to technical students from agricultural backgrounds who plan to pursue employment in the agricultural sector. Preference is given to students whose backgrounds, course and project work, summer employment and career plans reflect an interest in the crop protection industry.

Atlantic Poultry Conference Award

Awarded to a student whose course and project work reflect an interest in poultry. Preference will be given to seniors in the BSc (Ag) program who have either completed or have plans to complete a poultry-related research project in RESEM 4002/4003. This scholarship is offered bi-annually.

Dr. Roger S. Bacon Scholarship in Agriculture

In keeping with his lifetime interest and service to agriculture, the Honourable Dr. Roger S. Bacon Scholarship in Agriculture is awarded annually to a Nova Scotia student entering the final year of any program (technical, undergraduate or graduate) who has plans to pursue a long term career in agriculture. Selection criteria include career plans, academic performance and financial need. Dr. Roger S. Bacon was a family farmer and blueberry producer from Cumberland County, Nova Scotia, who served as an MLA for Iona constituency and during his political career was a well-respected and long serving Minister of Agriculture and for a time Premier of Nova Scotia.

Doug Bailey Memorial Scholarship

Farms Diary awards a scholarship to a student in any year of any program who is a family member of a farms Diary shareholder or employee, in memory of Doug Bailey, a former President and CEO. Selection criteria include leadership and extra-curricular and community activities, financial need and a sound academic record.

A. R. Banks Memorial Scholarship

Awarded to the second year BSc (Ag) student enrolled in the Animal Science option with the highest average from the first year of study.

Bible Hill Garden Club Scholarship

Awarded to a student from the Truro area. Preference is given to students at least the second year of study in Horticulture, preferably a landscape program. Selection criteria include academic performance and financial need.

David W. Brown Memorial Scholarship

The ACA Co-operative Limited/Eldis Valley Farms Limited awards two scholarships to students from either Nova Scotia or Prince Edward Island entering a second year of study. Selection criteria include financial need, academic performance, and interest in farming and in the poultry industry in particular.

Edward Brown Memorial Undergraduate Bursary

In memory of Edward Brown, Class of 1954, a bursary is awarded annually to an undergraduate student entering the fourth year of the BSc (Ag) program.

Dr. John Bubar Scholarship

Awarded to a New Brunswick student in the BSc (Ag) program in the second or third year and who is not in receipt of other significant scholarships. Selection criteria will include academic performance and financial need.

Merle Call Memorial Scholarship

Awarded to a senior undergraduate student or a graduate student from Atlantic Canada whose course or project work reflect an interest in organic agriculture. Selection criteria include academic performance, financial need and commitment to organic agriculture.

Vera Caldwell Memorial Bursary

Awarded to a deserving international student based on financial need. The bursary is in memory of Vera Caldwell who was a teacher and life-long learner who actively supported education for students from developing nations. Students who

608 Awards
In memory of Dr. Kenneth Cox, former Principal, this scholarship is awarded to a student entering the final year of the BSc (Agri) program.

Dorothy Creelman Cox Memorial Scholarship

Dorothy Creelman Cox was one of Dr. Kenneth Cox’s former students. She was an active member of the faculty and community, and her contributions were deeply appreciated.

Selection criteria include academic performance, demonstrated leadership ability, and interest in co-operation and co-operatives.

James Card Memorial Bursaries

At least three awards, sponsored by the estate of James Card, will be awarded to students in financial need. Preference will be given to international students.

Randy Casey Memorial Scholarship

A scholarship is awarded annually to a student from the Annapolis Valley entering a degree/diploma program at the Faculty of Agriculture who is interested in pursuing a career in agriculture. As a memorial to Randy Casey who worked for Stirling Fruit Farm for much of his life career, preference will be given to students with interests in the horticulture industry. Selection criteria include farm background and career plans, and academic performance.

Chartrons Scholarships

Compass Group Canada awards scholarships to outstanding students with high academic performance who have not qualified for other significant awards. Preference will be given to students living in residence.

Gerard Chiasson Memorial Award

The Inverness County Federation of Agriculture provides an award to a Cape Breton student who has completed at least one year of study at the Faculty of Agriculture. The bursary is awarded in memory of Gerard Chiasson, a past president of the Nova Scotia Federation of Agriculture who was also active in other local farm and community organizations. Selection criteria include financial need, involvement in community activities and leadership experience. Preference will be given to a student from Inverness County.

Chicken Producers of Nova Scotia Award

Awarded to a Nova Scotia student who shows a demonstrable interest in pursuing the study of poultry. Preference will be given to applicants with a farming background. Students in all years of study are eligible. A student may not receive this scholarship more than once.

Class of 1950 Award Fund

The Class of 1950 in commemoration of their fiftieth anniversary of graduation from the Dalhousie Faculty of Agriculture (formerly NSAC) established a fund to assist students in financial need.

George & Lottie Cook Memorial Scholarship

Awarded annually to a Nova Scotia student enrolled in the first or second year of the BSc (Agri) program. Selection criteria include academic performance and financial need.

The Renée Covill Scholarships

Established in 2010 by Bev’s husband, Bob, in recognition of her spirit and love of the garden at Dalhousie Faculty of Agriculture. The scholarship will go annually to a student who is enrolled in any year of study who has shown an interest in horticulture particularly landscape design and care. Preference will be given to mature students. Selection criteria will include career plans, academic performance and financial need.

Faculty of Agriculture Bursaries

Awards 609

Dairy Farmers of Nova Scotia Award

A scholarship is awarded annually to a returning student athlete based on financial need, involvement in a member of a college varsity team, recommendation from a coach and satisfactory academic performance.

Faculty of Agriculture Athletic Bursaries

Awarded to returning student athletes based on financial need, involvement in a member of a college varsity team, and satisfactory academic performance.

Faculty of Agriculture Bursaries

The Faculty of Agriculture has established a fund which will provide bursaries to assist students in financial need. Students must be in good standing and will have spent at least one term of full-time study at the Faculty of Agriculture and be registered on a full-time basis for both semesters for the full academic year. Students in need of financial assistance can apply for a bursary on an ongoing basis throughout the academic year.

Fall River Garden Club Bursary

Awarded to a student entering the second year of the BSc (Agri) program who has not received scholarships of higher value. Preference will be given to students from the Fall River, Waverley, Wellington, Oakfield, Lakeview or Windsor Junction, Nova Scotia areas. Other Nova Scotia students will be considered.

Farm Focus Scholarship

Awarded to a student entering the second year of study relating to horticulture. Preference will be given to students who have course and project work that reflect a commitment to environmental issues and career interests in growing plants (including farming). Selection criteria are academic performance, financial need and career plans.

Dorothy Creelman Cox Memorial Scholarship

Awarded to a female student entering the second year of the BSc (Agri) program in the Plant Science option. Selection criteria include academic performance and contribution to the college community.

Dr. Kenneth Cox Memorial Scholarship

In memory of Dr. Kenneth Cox, former Principal, this scholarship is awarded to a student entering the final year of the BSc (Agri) program.

Dartmouth Horticultural Society Scholarships

One scholarship will be awarded to a student beginning their studies in the Faculty of Agriculture who has committed their time and effort to raise awareness of social issues in their community and in their school. The second scholarship will be awarded to a returning student who has committed their time and effort to raise awareness of social issues in their community and on the Dalhousie Agricultural Campus. Secondary consideration will be given to academic performance and financial need.

Atlantic. Selection criteria include financial need, involvement in community activities and leadership experience. Preference will be given to students from the following priority: HRM; Nova Scotia; and elsewhere in Canada.

Ernest L. Eaton Memorial Scholarship

Awarded to a student entering the third year of the BSc (Agri) program who has not received scholarships of higher value. Selection is based on the student’s averages in the second year of their program.

Egg Farmers of Newfoundland & Labrador Scholarship

Awarded to a student entering the third year of the BSc (Agri) program. Selection criteria include financial need and academic performance. Preference will be given to students in the following priority: HRM; Nova Scotia; and elsewhere in Canada.

Faculty of Agriculture Alumni Family Scholarships

Awarded to family members of Dalhousie Faculty of Agriculture alumni. Selection criteria include academic performance and financial need. Students in any year of any program are eligible.

Farm Focus Scholarship

Awarded to a student entering the program of study relating to horticulture. Preference will be based on financial need and career plans. Preference will be given to students from the Fall River, Waverley, Wellington, Oakfield, Lakeview or Windsor Junction, Nova Scotia areas. Other Nova Scotia students will be considered.

Farm Focus Scholarship

Awarded to a student entering the second year of study. Selection is based on financial need and academic performance.

Ena Fenlon Memorial Scholarship

Sponsored by the Bedford Horticultural Society. Awarded to a second year student from the Bedford, Sackville, Wakefield district of Nova Scotia enrolled in Horticulture or Environmental Studies. In years where no student from Bedford, Sackville, Wakefield applies for the scholarship, consideration will be given to other students from HRM (excluding Haldimand and Dartmouth). Selection will be based on financial need, career plans and academic performance.

T. Bessie Milligan Gale Memorial Scholarship

Established in 2010 by Mrs.’s husband, Mr., in recognition of her spirit and love of the garden at Dalhousie Faculty of Agriculture. The scholarship will go annually to a student who is enrolled in any year of study who has shown an interest in horticulture particularly landscape design and care. Preference will be given to mature students. Selection criteria will include career plans, academic performance and financial need.
Awards

Undergraduate book Page 610 Wednesday, March 12, 2014 12:03 PM

610 Awards

Dr. Herbert F. MacRae Memorial Dalhousie Faculty of Agriculture/ Macdonald College Exchange Award

This award is designed to support student and staff exchange between the Faculty of Agriculture of the Macdonald College of McGill University.

Joseph E. Mapleglock Memorial Bursaries

In honor of Joseph E. Mapleglock, who farmed for 50 years in Kings County, Nova Scotia, and in recognition of his appreciation for the importance of a good education, family members have established two bursaries to be made available to technology students at the Faculty of Agriculture. Eligible candidates will have successfully completed the first year of a technology program and demonstrate financial need. A letter of recommendation from a Faculty member must accompany this application. One of the two awards will be made available annually to a student in the Plant Science Technology program.

Bill MacKeown Memorial Award

In memory of Professor Emeritus Bill MacKeown, who taught Animal Science course work for 20 years, a bursary will be awarded annually to an Agriculture student in any year of any program to assist in furthering their education through travel/study to another country. This bursary has been made available through generous contributions from students, Faculty of Agriculture colleagues, friends and associates at church and within the agricultural industry, in particular, the sheep breeders of Nova Scotia. In applying for consideration students will submit a proposal to participate in such activities to study semester abroad toward their degree/diploma, attendance at a conference to make a presentation, a specialized training course or an internship or development project.

Donald McInnes Award

Sponsored by Pictus Mutual Insurance Company to commemorate the 40 years of service Donald McInnes provided on their Board of Directors. Selection criteria include commitment to and involvement in the community; leadership provided in student activities, academic performance and financial need. A student may not be selected for this award more than once.

H. A. L. McLaggan Memorial Scholarship

Awarded to a horticulture student in memory of H. A. L. McLaggan, who taught horticulture from 1953 to 1971.

Karen Meek Memorial Scholarship

In memory of Karen Meek who studied Agricultural Business at the Dalhousie Faculty of Agriculture (formerly NSAC), 1980-1982, a scholarship will be awarded annually to a student who has completed at least one year in the BSc (Ag) Environmental Science program. Selection criteria include academic performance, financial need and contribution to campus life. This scholarship is not available to students receiving other awards over $1,000.

John Miller Memorial Award

Awarded to an Nova Scotia student, in any year of any program whose course and project work reflect an interest in the hog industry. The bursary is in memory of John Miller, who served as Secretary Manager of Park Nova Scotia from 1983 to 1997.

John Reginald (Rog) Morel Memorial Scholarship

In memory of J. R. (Rog) Morel who graduated from Dalhousie Faculty of Agriculture (formerly NSAC) in 1947 and retired from a career with Farm Credit Canada, two bursaries are awarded to students from Colchester County, Nova Scotia, who have completed at least one year of study in any program at the Faculty of Agriculture. Selection will be based on financial need and some academic performance. To be eligible students must be maintaining a minimum 2.70 GPA in their cumulative studies. Preference will be given to students studying full-time.

A. C. Neish Memorial Trust Scholarship

Awarded to a student entering the final year of the BSc (Ag) program. Selection criteria include high academic performance and qualities of leadership as indicated by participation and achievement in both academic and non-academic activities.

Newfoundland and Labrador Federation of Agriculture Scholarships

To encourage local students to pursue careers in the Agri-products industry, the Newfoundland and Labrador Federation of Agriculture awards two scholarships to Newfoundland and Labrador students (preferably one from the East Coast and one from the West Coast) entering studies at the Faculty of Agriculture. Selection criteria include academic performance and financial need.
Newfoundland and Labrador Provincial Scholarships
The Newfoundland and Labrador government, through its Department of Education, awards three scholarships to Newfoundland and Labrador students entering a degree program at the Faculty of Agriculture. Selection will be based on academic performance.

Nova Scotia Animal Breeders’ Cooperative Limited Awards
Awarded to two students (one to a degree student and one to a technology student). Students must be returning Nova Scotia students studying in an animal science program whose home farm backgrounds, course and project work, and career interests reflect an interest in the dairy or beef industry.

Nova Scotia Federation of Agriculture Scholarship
Awarded to second year Nova Scotia students with farm or 4-H backgrounds (one technology and one degree). Selection criteria include financial need and academic performance.

Nova Scotia Federation of Agriculture 100th Anniversary Scholarship
In recognition of the 100th Anniversary of the Nova Scotia Federation of Agriculture in 1991, a scholarship is awarded to a Nova Scotia student with a farm background with financial need and solid academic record. Students studying in any year of an undergraduate program are eligible.

Nova Scotia Mink Breeders’ Association Award
In memory of Dr. Bruce Hunter, a recognized expert on naturally occurring diseases in mink. Awarded to a student in the BSc (Agri) Animal Science or similar program with an application to the mink industry. Preference will be given to a student whose course/project work demonstrates an interest in mink.

Nova Scotia Power Inc. University Scholarship
The Nova Scotia Power Inc. university scholarship is awarded to a Nova Scotia student entering on a full-time basis the first year of an undergraduate degree program at the Faculty of Agriculture. The scholarship is tenable for up to four years. Selection criteria include academic performance and demonstrated involvement in extra-curricular activities.

Nova Scotia Institute of Agrologists’ Scholarships
The NSA awards two scholarships to Nova Scotia students. One will be awarded to a student entering their third year of the BSc (Agri) program and the second, recognizing the current anniversary of NSA, to a student entering their second, third or fourth year of the BSc (Agri) program. A student may receive either award once.

Nova Scotia Veterinary Medical Association Bursary
The Nova Scotia Veterinary Medical Association Bursary will be awarded to a Nova Scotia student in the first year of the Animal Health Technology program. Selection criteria include financial need and academic performance.

Nova Scotia 4-H Club Council Award
Awarded to a second year Nova Scotia student in any program. Selection criteria include academic performance, financial need and participation in 4-H club activities.

Nutree Canada Inc. Scholarship
Awarded to a final year BSc (Agri) student in the Animal Science option. Selection criteria include academic performance, leadership qualities, and participation in student and community affairs.

Don Paully Award
Awarded in recognition of the many years of service and contributions to weed science in Nova Scotia by Don Paully to an undergraduate student who is carrying out a senior year research project in the area of pest management with a preference given to students involves in weed science, either through academic work or summer employment.

Robert Parent Memorial Scholarship
In memory of Robert Parent, Class of 1921, this scholarship will be awarded to an outstanding student studying in any year of any program who has not qualified for other significant awards.

Passionate Plants Person Award
Established by the Atlantic Rhododendron and Horticulture Society. Awarded to a second year Nova Scotia student in the Environmental Horticulture diploma program. Preference is given to students whose passion for plants is infectious and will most impact the way we regard and understand plants in both public and private environments. The student should also demonstrate communication and leadership abilities and financial need.

Pattern Law-Price Awards
Awarded to a full-time student who has achieved the highest grade in MGTA 2001 the previous year.

Purdue Nova Scotia Scholarship
Awarded to a Nova Scotia student with an interest in or background in swine production. Selection criteria include demonstrated interest in the swine industry (through course or project work), academic performance and financial need.

Pragnia Athletic Awards
These awards are awarded to returning students. These awards have been provided by Dr. André Letarte, a former Professor in the Animal Science Department. To be eligible students will be maintaining academic performance and will have been involved in either a varsity team or an intramural/recreational team. Selection criteria include financial need, leadership and contribution to student life.

Prince Edward Island Institute of Agrologists’ Scholarship
Awarded to a student from Prince Edward Island in the third or fourth year of the BSc (Agri) program. A student may not receive this award more than once. Selection criteria include academic performance, school and community involvement and financial need.

Stuart Breath Junior A Bearcat Hockey Education Award Fund
Awards are available to members of the Truro Junior A Bearcats Hockey Club. Selection is based on academic performance, community service and the recommendation of the team coaches. Students in second semester and second year must successfully complete the course work in the previous semester to be eligible for continued support.

Cliff & Grace Renu Memorial Scholarship
In memory of Cliff and Grace Renu, Class of 1934. International students in any year of program are eligible. Selection criteria include financial need, academic performance, and interest in and involvement in multi-cultural activities on campus.

Irene L. Rhodenizer Memorial Scholarship
In memory of Irene L. Rhodenizer, the Nova Scotia Federation of Agriculture honors a scholarship to a second year Nova Scotia student. Selection criteria include academic performance, involvement in student affairs and participation in the 4-H program.

J. Arnold Roberts Memorial Scholarship
Awarded to an outstanding student from Atlantic Canada studying in any year of any program who is not receiving scholarships of greater value.

Howard W. Power Memorial Award
Awarded by the Nova Scotia/Newfoundland Branch of Holstein Canada to students who have completed at least one year in any program. Preference will be given to second year students in the Diplomas in Business Management - Dairy Farming program. Applicants must be residents of Nova Scotia or Newfoundland and Labrador and members of Holstein Canada, or a member of a family with Holstein Canada membership. Selection criteria include: involvement in the dairy industry, extra-curricular involvement through athletics and clubs on campus, involvement in farm organizations, financial need and satisfactory academic performance.

Ted Rose Memorial Scholarship
Awarded to a student who plans to operate a livestock farm. Selection criteria include academic need, academic performance and a documented commitment to animal welfare.

Bonny Club of Truro International Student Bursary
Awarded annually by the Rotary Club of Truro to an international student. All students paying the international tuition differential are eligible for consideration. The students must be in both undergraduate and graduate programs. Preference will be given to students registered in a program of study and registered fall full time, with additional preference given to students studying for the full year. (With no more than four undergraduate students taking at least four courses per semester.) Special

Awards 611
Awards

Bruce Trenholm/Atlantic ’86 Scholarship
Awarded to a resident from Kings County, New Brunswick, working towards a degree or diploma in agriculture.

Gail Semple Memorial Scholarship
In memory of Gail Semple (nee Johnson, Truro, Nova Scotia), who had a strong commitment to animal welfare, a scholarship is awarded annually to a student who has completed at least one year of study and is planning to study veterinary medicine or who was admitted to AVC in the current year. To be eligible applicants must be either currently or previously registered as a Pre-Vet student, or currently in the first year of the DVM program at AVC, having completed their Pre-Vet requirements at the Faculty of Agriculture. Selection criteria include financial need, academic performance and a background with demonstrated experience in animal welfare. AVC students should contact awards@ualberta.ca for an application (application deadline: October 15th).

B. S. Sedli Memorial Bursary
Awarded to a student paying international student fees. Students in all programs of study are eligible. Preference will be given to students in undergraduate and technical programs and will be based on financial need.

Sport Leadership Award
The Sport Leadership Award recognizes a high school varsity athlete enrolting full time in a program of study and planning on participating in a sport at the varsity level at the Faculty of Agriculture. Applicants must have a high school average of 85% in the course required for admission to be eligible. Recipients of other major entrance scholarships are not eligible. Selection criteria include financial need, sport skills and leadership. The Sport Leadership Award may be renewable for one year.

Jennifer Hayes Starratt Scholarship
Named for Jennifer Hayes Starratt, who graduated in 1996 with a BSc (Agr) degree or diploma in agriculture. Awards are available to students entering the third or fourth year of the BSc (Agr) program. Selection criteria include financial need, academic performance and a background with demonstrated leadership qualities during their program.

Syngenta Pest Management Awards
Awarded to students whose course and project work reflect an interest in the Maritime potato industry. Applicants will be required to submit a 300-500 word essay expressing opinions on a topic relating to the crop protection industry - suggested topics include: the future of genetically modified plants/crops, the future of crop protection products in Maritime agriculture (the fit and relevance of the agri-chemical industry to today’s agric fixed industry). Selection criteria include academic performance, interest in the Maritime potato industry, and potato farming experience or background.

Eric Williams Memorial Scholarship
Sponsored by the Dairy Farmers of Newfoundland and Labrador. These scholarships are awarded to students from Newfoundland and Labrador who have completed at least one year of study at the Faculty of Agriculture in any program. Preference is given to students who have completed at least one year of study in the third or fourth year of the BSc (Agr) program. Selection will be based on academic performance and financial need. Preference will be given to someone with interest and experience in small farms.

Young Farmers’ Awards (sponsored by PEI Young Farmers’ Associations)
Awarded to a student returning to the Faculty of Agriculture for the last year of studies in either the degree program or other multiple year programs. To be eligible, a student must be a Prince Edward Island resident, must be returning to the Faculty of Agriculture for the last year of study in a program of study, and must be able to demonstrate financial need and potential impact of the bursary on the student’s lifestyle while at school.

F. W. Walsh Memorial Scholarship
In memory of the late Professor F. W. Walsh, this scholarship is awarded to a student who is admitted to the first year of a degree program at the Faculty of Agriculture. Selection is based primarily on academic performance. Financial need and participation in school and community affairs will also be considered.

Florence (Pineo) Ward Memorial Award
Awarded to students in financial need. Recipients will have completed at least one year of study in a technology, Bachel or BSc (Agri) program. Preference will be given to students with sound academic background who have come to the Faculty of Agriculture for technical training to enhance their employability but financial constraints are limiting their ability to continue their studies. Preference will be given to students from Boultier’s Point, Halifax County, and Advocate, Cumberland County.

Eric Williams Memorial Scholarships
Sponsored by the Dairy Farmers of Newfoundland and Labrador. These scholarships are awarded to students from Newfoundland and Labrador who have completed at least one year of study at the Faculty of Agriculture in any program (generally, one to a technical student and one to a degree student). Selection will be based on academic performance.

H. J. Fraser Memorial Prize for English
In memory of the late Professor H. J. Fraser, a prize is awarded to a second-year student who has achieved excellence and provided significant contribution to the discussion in a first-year English course at the Dalhousie Faculty of Agriculture.

Jack Harrington Memorial Scholarship
In memory of Jack Harrington, Class of ’70, a scholarship is awarded to a final year Diploma in Enterprise Management student. Selection criteria include leadership and involvement in athletic and other activities and a sound academic record.

Dr. Bill Jenkins Memorial Scholarship
In memory of Dr. Bill Jenkins, a graduate of the Class of 1938 who served as NSAC Principal from 1964 to 1972, a scholarship will be awarded to a second or third year undergraduate student in any of the Business degree programs. Selection criteria will include overall academic performance, leadership record and financial need.
2. Department of Engineering

- **Atlantic Farm Mechanization Show Scholarship**
  Awarded to a student from the Atlantic Provinces who has completed at least one year of study at the Faculty of Agriculture in the Engineering Diploma program or the Integrated Environmental Management major of the BSc (Agri) program. Selection is based on academic performance and the demonstrated potential for a career in the area of mechanization of agriculture.

- **Atlantic Land Improvement Contractors Association Award**
  Awarded to engineering students with a demonstrated ability and interest in soil, water, and land improvement.

- **Paul Babineau Memorial Scholarship**
  The Atlantic Farm Mechanization Show awards a scholarship in memory of Paul Babineau, a long-time Director on their board, to a student from the Atlantic Provinces who has completed at least one year of study at the Faculty of Agriculture in the Engineering Diploma program or the Integrated Environmental Management major of the BSc (Agri) program. Selection is based on academic performance and the demonstrated potential for a career in the area of mechanization of agriculture.

- **Donald E. Clark Memorial Scholarship**
  In memory of Donald E. Clark, former Professor and Head of the Engineering Department, one or more scholarships are awarded to final-year students in the Engineering Department. Selection criteria include academic performance, interest, and aptitude in the engineering field.

- **Nova Scotia Power Inc. Centennial Scholarships**
  Nova Scotia Power sponsors five scholarships with a two-year tenure to Engineering students entering the third year of the BEng program at Dalhousie Faculty of Engineering in September. Selection criteria include academic performance, personal attributes and involvement in extra-curricular activities. Applications must include a resume, transcript and essay, be submitted to the Head of the Engineering Department.

3. Department of Environmental Sciences

- **Charles M. Collins Memorial Scholarship**
  Awarded to a student enrolled in a program of study relating to Horticulture in memory of Charles McKim Collins who taught Horticulture at the Dalhousie Faculty of Agriculture (formerly NSAC) for 25 years, including supervision of the landscaping and maintenance of the campus grounds, and for whom the Collins Horticultural Building was named in 1975. Preference will be given to students studying in the Bachelor of Technology program in Environmental Landscape Horticulture who have not qualified for other significant awards.

- **John Higgins Memorial Scholarship**
  In memory of John Higgins who taught at the Dalhousie Faculty of Agriculture (formerly NSAC), the Atlantic Association of Landscape Designers sponsor a scholarship and a free association membership to a student entering the third year of the Bachelor of Technology in Environmental Landscape Horticulture program who has excelled in the area of landscape design during the Diploma in Technology (Managed Landscapes) program. Selection criteria include academic performance and skill and interest in landscape design.

- **Landscape Nova Scotia Award**
  Awarded to a Nova Scotia student studying in a landscape related program. Selection criteria include academic performance and financial need.

- **Raymond Webber Memorial Scholarship**
  Landscape Nova Scotia and the New Brunswick Horticultural Association jointly award a scholarship to the most promising second-year Diploma in Technology (Managed Landscapes) student. Selection criteria include academic performance and practical skills.

4. Department of Plant and Animal Sciences

- **Canadian Society of Animal Science Prize**
  The Canadian Society of Animal Science presents a book prior to a student in the fourth year of the Animal Science or Aquaculture options of the BSc (Agri) program. This award is selected on the basis of outstanding scholarship. No application is required.

- **Colonel Charles Coll Memorial Scholarship**
  Awarded to a student in the final year of an Animal Science major. Selection criteria include academic performance, involvement and interest in poultry, and achievement and contribution to 4-H.

- **Eastern Veterinary Technicians Association Bursary**
  Awarded to a student entering the second year of the Veterinary Technology program whose performance in the first year has demonstrated a caring attitude and a commitment to others. Students must not have received other scholarships of greater value.

- **Nova Scotia Egg Producers Association Scholarships**
  Awarded to students enrolled in the Animal Science major of the BSc (Agri) program whose course and project work show an interest in poultry. At least one scholarship will be awarded to a final-year student conducting a poultry related research project in RESM 4002 and RESM 4003.

- **G. G. Smeltzer Memorial Award**
  Awarded to a student entering the second year of the Veterinary Technology program whose performance in the first year has demonstrated a caring attitude and a commitment to others. Students must not have received other scholarships of greater value.

C. Faculty of Architecture and Planning

These scholarships are administered by the academic unit. Please consult the Faculty of Architecture and Planning for additional information.

- **75th Anniversary Alumni Family Scholarship**
  The Engineering Alumni Association established this award in 1995 in recognition of the 75th anniversary of the Association. This award of $1,750 is open to students registered in the penultimate or final undergraduate year of Computer Science, Architecture, Planning, or Engineering. The recipient must be a family member (son/daughter, spouse, grandchild, niece/nephew, brother/sister) of an engineering graduate and have achieved satisfactory academic standing. Application required. Deadline: September 30.

- **Aliant Amphora Scholarship**
  A one-year scholarship open to students registered in Year four or five of an Architecture, Planning, Computer Science, or Engineering program. Selection is carried out by the Scholarship and Awards Committee of the Faculty of Engineering. Application required. Deadline: September 30.

- **The Harry Kitz Fund**
  Interest from the fund, established in memory of the late Harry Kitz, is used to support one or more students in the Faculty of Architecture and Planning to undertake architectural design, research, or construction activities on public property in the Halifax Regional Municipality. Proposals are evaluated on their imagination, practicality, and potential value to the community. Application Deadline: May 31.

- **Mazankowski Foundation Entrance Scholarship**
  This foundation has established a $1,100 award for a student who fulfills or is expected to fulfill the minimum entrance requirements for admission to the BEDS program in Architecture or year three of the Bachelor of Computer Science or Engineering. The Scholarship is awarded on the basis of the applicant’s academic record at the Associated University of the Dalhousie University. The Committee may also weigh financial and other considerations in reaching a decision. Application required. Deadline: April 30.

- **The Jedlick Architectural Design Scholarship**
  The Centennial Group of Companies Limited established this award of $2,000 for a student with an outstanding record in Design in year three of the BEDS program. The successful applicant is selected at the year-end review in April and receives the scholarship at the start of the next academic term, in May. Application not required.

- **The Newfoundland and Labrador Association of Architects William J. Ryan Memorial Scholarship**
  The Newfoundland and Labrador Association of Architects established this $2,000 award to an Architecture student entering year four of the BEDS program who was born in...
Newfoundland and Labrador or had lived in the province for a minimum of three years prior to entering a university in the province, and who demonstrates: (a) the best design ability through assigned projects; (b) practicality of design and ability to show that she or he can make the solution workable; (c) aptitude for a particular or several aspects, other than design of architecture and the built environment; (d) an indication of the development of professional ability; (e) highest overall marks in classes of study other than design; (f) financial need, if candidate is equal to others at least three of the other criteria. Application not required.

Newfoundland and Labrador Alumni Undergraduate Scholarship

This award of $5,000 was established by the St. John’s Newfoundland Alumni Branch to a student registered in year four in Architecture, Planning, Computer Science, or Engineering. The scholarship is awarded primarily on the basis of the applicant’s academic record (first class mandatory) with preference given to students who were residents of Newfoundland and Labrador immediately prior to attending Dalhousie. The selection committee may weigh other considerations in reaching a decision. Deadline: September 30.

President’s Associates Entrance Scholarship

The President’s Associates Entrance Scholarship has been made possible by members of the Associate’s Program (1994-96). The members represent business, industry, friends, faculty, and university administrators. This award of $1,000 is made annually to a student in undergraduate Architecture, Planning, Computer Science or Engineering on the basis of their academic record. Candidates must have fulfilled or expect to fulfill the entrance requirements for the B.EDS program in Architecture or for entrance into third year of Engineering or Computer Science. Deadline: April 30.

Salvator Paradise Scholarship

Two scholarships, each worth $4,500 (subject to annual review), are awarded to a full-time fourth year Bachelor of Environmental Design Studies student and a full-time fifth year Master of Architecture student. They are based on the students’ practicability of design, collaboration, improvement during the architecture program, and financial need. Preference is given to students who are permanent residents of Atlantic Canada and who show potential for managing a private practice in architecture. Application deadlines: first week of January (B.EDS) and first week of May (M. Arch (MICH)).

The Shaw Group Environmental Design Scholarship

In the 1980s, The Shaw Group Limited established an award for the student in the School of Architecture who has derived the greatest benefit from Design courses during year three of the Bachelor of Environmental Design Studies program. To be eligible for this $2,500 award, a student must have been born in, and have permanent residence in, Atlantic Canada. The recipient is selected at the year-end review in April and receives the scholarship at the start of the next academic term in May. No application is required.

D. Faculty of Arts and Social Sciences

The following scholarships are administered by the Registrar’s Office. Applications are not required.

Nathan T. Ashkins Scholarship

Each year the Nathan T. Ashkins fund provides for a scholarship to a student in Arts and Science who is in beyond first year.

Robert Bruce Scholarship

Robert Bruce of Banlieue, Quebec, made a bequest to the University to establish bursaries and scholarships.

Dalhousie Club of New York Scholarships

A fund for this purpose, established by the Dalhousie Club of New York and placed in the hands of the Board of Governors of the University, endows several scholarships open to students in the Faculties of Arts and Social Sciences or Science.

Dr. Frederick J. Gaudet Scholarship

Dr. Gaudet bequeathed to the University in 1978 a sum of money to provide for a scholarship in Arts.

The Hymat J. Jacobson Scholarship

Under the will of the late Hymat J. Jacobson a bequest of $5,000 was given to the University to benefit the Humanities and Social Sciences.

The Khaki University Scholarships

From the Khaki University of Canada and the Young Men’s Christian Association Memorial Scholarship Fund, the trustees of Khaki University made a gift to Dalhousie University in 1923 of $6,000 to endow scholarships.

NewPage-Port Hawkesbury Mill Undergraduate Scholarship in Arts or Science

On the occasion of their 75th Anniversary St. Onus Ema have established an endowment to provide one undergraduate scholarship open to students in Arts and Science. To be eligible, candidates must reside in Nova Scotia, have demonstrated academic excellence and have exhibited a desire to learn. Students will be considered after one year at Dalhousie.

The Commodore Bruce S. Oland Scholarship

An annual scholarship that alternates between the Department of English and the Faculty of Management. Awarded automatically by the Registrar’s Office.

The Alan Pollack Scholarship

This scholarship of $1,000 was established by The Scots North British Society in Halifax in memory of the Rev. Dr. Alan Pollack. The awardee will be a second year student in the College of Arts and Science at Dalhousie University.

The Charles and Cecilia Zoeuling Scholarship

This fund was created by members of the Zoeuling family in memory of Mr. and Mrs. Charles Zoeuling for a scholarship beyond first year.

The following scholarships are administered by the academic unit. Please consult the departments or schools directly for details.

1. English

Allan and Una Bevan Memorial Scholarship

Colleagues and friends of the late Allan Bevan have established a memorial scholarship of about $1,000 a year. The scholarship is to be awarded, in the first place, to a student in the Major program (but in a student entering the third or fourth year of the Majors program). In the absence of a suitable candidate from the Major program, the scholarship will be awarded to a student entering the third or fourth year of the Honours program. If there are no suitable candidates from English, the selection will be made by the School of Performing Arts.

The Archibald MacMechan Chapter/IODE Scholarship in English

This scholarship was presented to Dalhousie University as an endowment by the Archibald MacMechan Chapter, Imperial Order Daughters of the Empire. It is awarded to a Dalhousie student of special ability in English, and preference is given to graduates who intended to study for a Master’s degree in English. Students registered at King’s are not eligible.

2. French

The French Department Scholarship

The French Department Scholarship is awarded to students entering the third or fourth year of a major or an Honours program in French, and who have spent a year studying in France. The award is based on merit and potential in French courses. At the discretion of the Department, the scholarship may also be awarded to outstanding students who have not studied abroad. This award is confirmed at a Departmental ceremony in the spring.

The Ruth Murray Scholarship for French Studies

An endowment fund has been established to honour the memory of Mrs. Ruth Murray by providing scholarships to students in the Department of French. These scholarships are open to undergraduate students who are academically sound and who are participating in a departmental program abroad. At the discretion of the Department, the fund may also be used to provide financial assistance for on-campus students majoring in French who have demonstrated above average academic ability. This award is confirmed at a Departmental ceremony in the spring.

3. History

The Atlantic World History Scholarship

Before travel and tourism became so common a part of everyday life, the connection between people and places was more intimate. This scholarship was created by Dalhousie History graduate Susan Boggie to encourage excellent senior students whose undergraduate studies have focused on the history of the social, cultural,
economic and political worlds that have been connected across and around the Atlantic Ocean. Recipients will have taken one or both of the History Department’s second year survey courses in Atlantic World history, as well as two or more other courses with substantial Atlantic World content. This scholarship is awarded annually.

The Gilbert F. Jones History Scholarship
This annual scholarship established by Dalhousie Music graduate Gilbert F. Jones will be awarded to an undergraduate student in their third year of study with a concentration in History. Preference will be given to students whose area of interest is in exploring the field of the Atlantic World and its relationship to the study of Atlantic Canada.

Laurel V. King Scholarship
This scholarship, in the amount of $1,000, has been established by Laurel V. King to reward students who have been particularly motivated by the discipline of History to achieve academic excellence. The scholarship is awarded annually to a student in the second or subsequent year of her degree program. The recipient will have History as a subject of concentration, will have shown good academic ability, and will have shown an excellent level of performance in History courses.

Preference is given to a female student.

The George E. Wilson Memorial Scholarship
On the occasion of the 50th anniversary of the graduation of the Class of 1938, a representative announced the establishment of a scholarship fund. The scholarships, in honour of Professor Wilson, are open to students in history.

4. Music, Fountain School of Performing Arts

The Bornoff/Garamie Memorial String Scholarship
A scholarship will be given to a student who is entering the third or fourth year of a music degree program who in the opinion of the School has demonstrated outstanding talent as a string player. The fund was established to honour the memory of two significant string music teachers, George Bornoff and Arthur Garamie.

Esano Audio Group Scholarship
A $1,000 scholarship will be awarded to a student in the third or fourth year of the Bachelor of Music concentration in Composition. To be eligible, students must be Canadian citizens or landed immigrants and must demonstrate artistic excellence and a commitment to performing arts in the community.

Honourable L. D. Currie Memorial Scholarship in Music
This fund is in memory of the Honourable Lauzon D. Currie in 1971. An annual scholarship in the amount of $1,000 is available to a Canadian in any year of Music. The successful student will have demonstrated competence in vocal or instrumental performance.

The Elvira Gonnella Scholarship in Voice
The Elvira Gonnella Scholarship in Voice, established in 1974, is given to a voice student entering his/her third or fourth year of a music degree program who in the opinion of the School has demonstrated a particular interest in continuing her career in the arts. Preference is given to students entering the third year of the Bachelor of Music (Vocal Performance) program or equivalent. If there are no eligible students in a given year, consideration may be given to a student entering his/her fourth year of University. The scholarship may also be split into two awards. The recipient will have a cumulative GPA of 3.50 or higher.

5. Spanish and Latin American Studies

Sonia Jones Scholarship
The Sonia Jones Scholarship provides assistance to advanced students of Spanish and Latin American Studies (honours or major) who are studying abroad in programs approved by the School.

6. Theatre, Fountain School of Performing Arts

Costume Studies Scholarship
Awarded annually to a full-time student in the final year of the Costume Studies Program.

Lyn Gratznick-Theatre Arts Guild Scholarship in Costume Studies
To honour the memory of Lyn Gratznick, this scholarship is awarded annually to one (or more) students in the Fountain School of Performing Arts’ Costume Studies Program who has (have) demonstrated artistic excellence in costume-making for theatre and who intends to pursue a career as a costume designer for a professional theatre company or an historic site.

Richardson Family Performing Arts Scholarship - Theatre
Four scholarships awarded annually to Theatre students entering their third or fourth year of Theatre study, one in each of the following areas: Acting, Costume Studies, Scenography and Technical Theatre and Stage Design, and Theatre Studies. Eligible students must demonstrate artistic excellence and have career aspirations focused on performing arts.

Richardson Family Performing Arts Scholarships - Theatre

Christine Zinck Scholarships
Four scholarships awarded annually in each of the four streams of Theatre: Acting, Costume Studies, Scenography and Technical Theatre and Stage Design and Theatre Studies.

E. Faculty of Computer Science

E. Faculty of Computer Science

Awards

Awards 615

Awards
Awards

Undergraduate.

Book  Page 616  Wednesday, March 12, 2014  12:03 PM

616  Awards

Awards

Architecture, Planning, Computer Science, or Engineering program. Selection is based on a combination of grades and demonstrated financial need. Preference will be given to students who can demonstrate a financial need. Application required. Deadline: April 30.

Bruce and Dorothy Rosetti Engineering Entrance Scholarships

The Bruce and Dorothy Rosetti bequest provides five $1,000 awards to undergraduate students in the penultimate year of a program in Computer Science. Selection is made on the basis of the students’ academic record at Dalhousie. Application required. Deadline: September 30.

The Walter Gardner Stanfield Entrance Scholarships

The Walter Gardner Stanfield bequest provides two awards valued at $1,000 each to students who fulfill or expect to fulfill the minimum entrance requirements into third year of Engineering or Computer Science. Application required. Deadline: April 30.

Newfoundland and Labrador Alumni Undergraduate Scholarships

This award of $1,000 was established by the St. John’s Newfoundland Alumni Branch for a student registered in the second year in Architecture and Planning, Computer Science, or Engineering. The scholarship is awarded primarily on the basis of the applicant’s academic record (first class mandatory) with preference given to students who were residents of Newfoundland and Labrador immediately prior to attending Dalhousie. The selection committee will weigh other factors in reaching a decision. Application required. Deadline: September 30.

President’s Associates (Entrance) Scholarships

The President’s Associates Entrance Scholarship has been made possible by the generosity of business, industry, friends, faculty and university administrators. This award of $1,000 is given to a student in undergraduate Architecture and Planning, Computer Science or Engineering on the basis of the academic record. Candidates must have fulfilled or expect to fulfill the entrance requirements for an undergraduate degree program in Architecture or for entrance into third year of Engineering or Computer Science. Application required. Deadline: April 30.

F. Faculty of Engineering

Unless otherwise noted, applicants for these awards apply to the Scholarships and Awards Committee of the Faculty of Engineering. Students applying from Associated Universities for third year may obtain application forms from the Director/Head/Chair of Engineering at the Associated University or through the Office of the Associate Dean of Engineering at Dalhousie. Application deadlines for awards in this section are stated.

Hira and Kamal Abjja Engineering Scholarship

This scholarship valued at $2,000 has been established in memory of Mrs. Kamal Abjja, by her family. Prof. Abjja was Director of Continuing Education at the Technical University of Nova Scotia. Candidates must have fulfilled the requirements for entry to year three of any Engineering program at the time of application. The award is based on a combination of grades and demonstrated financial need. Preference will be given to students who can demonstrate a significant cultural contribution to the East India community. Interested students must complete an application form and a covering letter, explaining their qualifications for this award. Application required. Deadline: April 30.

A. David Blair Scholarship

An endowment has been established to provide an annual scholarship in memory of A. David Blair, who graduated from Dalhousie in 1967 with a BSc degree. Candidates for the scholarship will be those who have fulfilled the requirements for promotion from year two to year three in the Dalhousie Faculty of Engineering. The awardee will have achieved high academic standing and demonstrated financial need. Application deadline: April 30.

The Dr. Alan E. Cameron Scholarship

An anonymous donor established this award of $1,000 for students registered in the senior year of the Faculty of Engineering. The recipient will be selected on the basis of personality, leadership and scholarship. The letter of nomination on application should convey to the Committee the reasons the nominee or applicant is deemed worthy of the award. The Committee will accept either nominations or applications, by letter addressed to the Associate Dean of Engineering. Application required. Deadline: September 30.

The Atlantic Farm Mechanization Show established this award of $1,000. Eligible applicants are Canadian citizens/landed immigrants, residents of Atlantic Canada who are entering the Biological Engineering Program at Dalhousie. The scholarship is awarded on the basis of the applicant’s academic record at the Associated University or the previous years at Dalhousie with particular emphasis on performance in the machinery related courses - statics, strength of materials, dynamics of particles and dynamics of rigid bodies. The award is made on the recommendation of the chair of the Biological Engineering Program in consultation with the director of the student’s Associated University and with the faculty members of the Department of Biological Engineering. Application required. Deadline: April 30.

An anonymous donor established this award of $1,000 for students registered in the senior year of the Faculty of Engineering. The award is based primarily on the academic record of the applicant during the junior year, but will also take into account the personality, leadership ability and financial need of the applicant. Application required. Deadline: September 30.

CBE Limited, Consulting Engineers’ Scholarship

CBE Limited, Consulting Engineers established this award valued at $1,000. Eligible students are required in their senior or fifth year of Civil, Industrial, Mechanical or Electrical Engineering programs in the Faculty of Engineering. The Scholarship is awarded primarily on the basis of the applicant’s academic record. Other factors such as personality, initiative, community involvement, other awards held by the applicant, etc. may also weigh in the decision. Application required. Deadline: September 30.
Design and Construction Institute Engineering and Architecture Scholarship
The Design and Construction Institute (DCI) is a voluntary organization consisting of over 75 industry leaders whose common goal is to foster and advocate for the design and construction industry in Nova Scotia. This scholarship, valued at $1,000, will be awarded annually to students who show an aptitude for or are interested in the design and construction industries in Nova Scotia. The award will rotate between the Engineering and the Architecture and Planning Faculties. Candidates shall be in years 3 or 4 of an Engineering program or in the first year of the Masters in Architecture program. Students will be selected based on academic achievement and recommendations from professors. The recipient will submit a letter to DCI demonstrating their commitment to pursuing a career in the design and or construction industry. Application deadline: September 30.

The Percy Bertram Jollota Scholarship
Under the Will of the late M. Roy Foran, the University received an endowment which provides an annual scholarship for a student enrolled in their final year of the Chemical Engineering program with exceptional academic standing. Application required. Deadline: September 30.

The Dr. H. W. L. Doane, F. E. I. C. Scholarship
Nova Scotia Power Inc. established this scholarship valued at $400 in 1981 in recognition of dedicated service rendered by Mr. Doane as a member of the Nova Scotia Power’s Board of Directors from 1913 to 1981. A distinguished engineer, Mr. Doane graduated from Dalhousie in 1913, was invested as an Honorary Doctor in 1957, was presented with the Sexton Memorial Award in 1964, and was honorary president of the University’s Alumni Association. Eligible students are Nova Scotia students registered in the senior year of Civil Engineering. Basis is academic achievement, leadership ability and qualities of personality and character. Application required. Deadline: September 30.

The James L. Hall Scholarship
The recipient will submit a letter to DCI demonstrating their commitment to reaching a decision. Application required. Deadline: September 30.

The Jaeger, Mufti, Bakht and Tadros Engineering Scholarship Fund will provide one or more scholarships for engineering students, accepted into the third year of their undergraduate program in the Faculty of Engineering. The scholarship alternates between Engineering and Earth Sciences. Application not required.


discussed an interest in mathematical modeling and finite element analysis of academic record at Dalhousie. Preference will be given to a student who has completed his/her first year, who is planning on a career in Engineering or Geology with preference to those with interest in the field of Mining Geology. Application not required. Deadline: October 31.

The Jaeger, Mufti, Bakht and Tadros Engineering Scholarship Fund will provide one or more scholarships for engineering students, accepted into the third year of their undergraduate program in the Faculty of Engineering. The scholarship alternates between Engineering and Earth Sciences. Application not required.

The John J. Jodrey Scholarship
John J. Jodrey established this award valued at $2,000. Eligible students are Atlantic Canadian students registered in the penultimate year of an Engineering program. The scholarship is awarded on the basis of the applicant's academic record at Dalhousie University. Application required. Deadline: September 30.

The Percy Bertram Jollota Scholarship
Under the Will of the late M. Roy Foran, the University received an endowment which provides an annual scholarship for a student enrolled in their final year of the Chemical Engineering program with exceptional academic standing. Application required. Deadline: September 30.

The Dr. H. W. L. Doane, F. E. I. C. Scholarship
Nova Scotia Power Inc. established this scholarship valued at $400 in 1981 in recognition of dedicated service rendered by Mr. Doane as a member of the Nova Scotia Power’s Board of Directors from 1913 to 1981. A distinguished engineer, Mr. Doane graduated from Dalhousie in 1913, was invested as an Honorary Doctor in 1957, was presented with the Sexton Memorial Award in 1964, and was honorary president of the University’s Alumni Association. Eligible students are Nova Scotia students registered in the senior year of Civil Engineering. Basis is academic achievement, leadership ability and qualities of personality and character. Application required. Deadline: September 30.

The James L. Hall Scholarship
The recipient will submit a letter to DCI demonstrating their commitment to reaching a decision. Application required. Deadline: September 30.

The Jaeger, Mufti, Bakht and Tadros Engineering Scholarship Fund will provide one or more scholarships for engineering students, accepted into the third year of their undergraduate program in the Faculty of Engineering. The scholarship alternates between Engineering and Earth Sciences. Application not required.

The John J. Jodrey Scholarship
John J. Jodrey established this award valued at $2,000. Eligible students are Atlantic Canadian students registered in the penultimate year of an Engineering program. The scholarship is awarded on the basis of the applicant's academic record at Dalhousie University. Application required. Deadline: September 30.

The Percy Bertram Jollota Scholarship
Under the Will of the late M. Roy Foran, the University received an endowment which provides an annual scholarship for a student enrolled in their final year of the Chemical Engineering program with exceptional academic standing. Application required. Deadline: September 30.

The Dr. H. W. L. Doane, F. E. I. C. Scholarship
Nova Scotia Power Inc. established this scholarship valued at $400 in 1981 in recognition of dedicated service rendered by Mr. Doane as a member of the Nova Scotia Power’s Board of Directors from 1913 to 1981. A distinguished engineer, Mr. Doane graduated from Dalhousie in 1913, was invested as an Honorary Doctor in 1957, was presented with the Sexton Memorial Award in 1964, and was honorary president of the University’s Alumni Association. Eligible students are Nova Scotia students registered in the senior year of Civil Engineering. Basis is academic achievement, leadership ability and qualities of personality and character. Application required. Deadline: September 30.

The James L. Hall Scholarship
The recipient will submit a letter to DCI demonstrating their commitment to reaching a decision. Application required. Deadline: September 30.

The Jaeger, Mufti, Bakht and Tadros Engineering Scholarship Fund will provide one or more scholarships for engineering students, accepted into the third year of their undergraduate program in the Faculty of Engineering. The scholarship alternates between Engineering and Earth Sciences. Application not required.

The John J. Jodrey Scholarship
John J. Jodrey established this award valued at $2,000. Eligible students are Atlantic Canadian students registered in the penultimate year of an Engineering program. The scholarship is awarded on the basis of the applicant's academic record at Dalhousie University. Application required. Deadline: September 30.

The Percy Bertram Jollota Scholarship
Under the Will of the late M. Roy Foran, the University received an endowment which provides an annual scholarship for a student enrolled in their final year of the Chemical Engineering program with exceptional academic standing. Application required. Deadline: September 30.

The Dr. H. W. L. Doane, F. E. I. C. Scholarship
Nova Scotia Power Inc. established this scholarship valued at $400 in 1981 in recognition of dedicated service rendered by Mr. Doane as a member of the Nova Scotia Power’s Board of Directors from 1913 to 1981. A distinguished engineer, Mr. Doane graduated from Dalhousie in 1913, was invested as an Honorary Doctor in 1957, was presented with the Sexton Memorial Award in 1964, and was honorary president of the University’s Alumni Association. Eligible students are Nova Scotia students registered in the senior year of Civil Engineering. Basis is academic achievement, leadership ability and qualities of personality and character. Application required. Deadline: September 30.

The James L. Hall Scholarship
The recipient will submit a letter to DCI demonstrating their commitment to reaching a decision. Application required. Deadline: September 30.

The Jaeger, Mufti, Bakht and Tadros Engineering Scholarship Fund will provide one or more scholarships for engineering students, accepted into the third year of their undergraduate program in the Faculty of Engineering. The scholarship alternates between Engineering and Earth Sciences. Application not required.

The John J. Jodrey Scholarship
John J. Jodrey established this award valued at $2,000. Eligible students are Atlantic Canadian students registered in the penultimate year of an Engineering program. The scholarship is awarded on the basis of the applicant's academic record at Dalhousie University. Application required. Deadline: September 30.

The Percy Bertram Jollota Scholarship
Under the Will of the late M. Roy Foran, the University received an endowment which provides an annual scholarship for a student enrolled in their final year of the Chemical Engineering program with exceptional academic standing. Application required. Deadline: September 30.
Awards

Dr. S. K. Malhotra, former Dean of Graduate Studies and Professor for Civil Engineering. The $1,500 scholarship was established by his family and friends in memory of him. Application required. Deadline: September 30.

J. Douglas Kline Memorial Scholarship

The Halifax Water Commission established this award of $2,500. Eligible students are Nova Scotia students registered in the final year of the undergraduate Civil Engineering program in the Faculty of Engineering. The applicant must be involved in water-related studies in Civil Engineering. The scholarship is awarded on the basis of the applicant’s record at Dalhousie University. While academic excellence will be the primary criterion for the award, the selection committee may also weigh other considerations in reaching a decision. Application required. Deadline: April 30.

The Donald MacFadgen Memorial Scholarship

T. Donald MacFadgen to provide an annual scholarship to one or more worthy students demonstrating greatest improvement from the first to second year of the engineering degree program. Application not required.

Dorothy Macdonald Crummey Memorial Scholarship

This award was established by the family of the late Dorothy Macdonald Crummey to provide an annual scholarship to one or more worthy students entering their second year of study in the Bachelor of Applied Science (Food Science) Program. Ms. Macdonald attended the Halifax Ladies College (an affiliate of Dalhousie University), graduated with a diploma in Household Science in 1932 and worked as a dietitian at the Victoria General Hospital in Halifax. She married R. Donald Macdonald, an electrical engineer from the Nova Scotia Technical College. The scholarship is awarded to a male Dalhousie engineering student who was born in Nova Scotia and attended schools in Nova Scotia. The successful candidate will be among those who have fulfilled the requirements for promotion from year two to year three in the Dalhousie Faculty of Engineering. The recipient must have achieved excellent academic standing and demonstrated greatest improvement from the first to second year of the engineering degree program. Application not required. Deadline: September 30.

The Gordon C. McCausland Scholarship

This foundation has established a $3,100 award for a student who fulfills or is expected to fulfill the minimum entrance requirements for admission to the BDS program in Architecture, or for three of the Bachelor of Computer Science or Engineering. The scholarship is awarded on the basis of the applicant’s academic record at the Associated University or at Dalhousie. The Committee may also weigh financial and other considerations in reaching a decision. Application required. Deadline: April 30.

The Minas Basin Pulp and Power Company Limited Scholarships

Preference will be given to students from the Atlantic Provinces, the first studying Civil Engineering. The scholarship is awarded to the student with the highest academic achievement in the course “Corrosion an Degradation of Materials” or to an undergraduate student who receives top marks in a corrosion-related research project. The winner is expected to meet the local NACE International Section members and encourage to become a student member with the initial membership fee covered by the membership. Deadline: September 30.

The Minas Basin Scholarship

This award was established in 1985. Eligible candidates must have fulfilled or expect to fulfill the minimum entrance requirements into third year of the undergraduate Civil Engineering program in the Faculty of Engineering. The award is made on the basis of the applicant’s academic record at the Associated University or at Dalhousie. Selection is carried out by the Scholarships and Awards Committee of the Faculty of Engineering on the recommendation of the Chair of the Civil Engineering program. Application required. Deadline: April 30.

The George Geoffrey Meyrath Scholarship

Dr. George Geoffrey Meyrath established this award of $1,000. Eligible students are registered in the senior year of Civil Engineering in the Faculty of Engineering. The award is based primarily on the academic record of the applicant during the junior year, but will also take into account personality and leadership ability. A letter of nomination or application should convey the nominee’s or applicant’s own worthiness of the award. Selection will be carried out by the Scholarships and Awards Committee of the Faculty of Engineering in consultation with the Chair of the Civil Engineering program. Application required. Deadline: September 30.

Gordon C. McCausland Scholarship

Dr. Elizabeth C. McCausland established this award of $1,000. Eligible candidates must have fulfilled or expect to fulfill the minimum entrance requirements into third year of an undergraduate program in the Faculty of Engineering in the field of Mineral Resource and Materials Engineering. Application required. Deadline: April 30.

The John R. Kaye Memorial Scholarship

In 1981 a scholarship was established in memory of Mr. John R. Kaye, a notable engineer who served as Chairman of the Board at the Technical University of Nova Scotia, and received an honorary doctorate in 1961. This scholarship is to provide financial assistance to an engineering student who is a native born Nova Scotian, and well-rounded individual. The successful candidate will be among those who have fulfilled the requirements for promotion from year one to year two in the Dalhousie Faculty of Engineering. She will be academically sound and will have demonstrated motivation, diligence, and promise in succeeding and being a credit to the engineering profession. Application not required.

The Beef, Batten, and Associates scholarship provides financial assistance to a student who is a native born Nova Scotian, and well-rounded individual. The successful candidate will be among those who have fulfilled the requirements for promotion from year one to year two in the Dalhousie Faculty of Engineering. She will be academically sound and will have demonstrated motivation, diligence, and promise in succeeding and being a credit to the engineering profession. Application not required.

The Gordon C. McCausland Scholarship

This foundation has established a $3,100 award for a student who fulfills or is expected to fulfill the minimum entrance requirements for admission to the BDS program in Architecture, or for three of the Bachelor of Computer Science or Engineering. The scholarship is awarded on the basis of the applicant’s academic record at the Associated University or at Dalhousie. The Committee may also weigh financial and other considerations in reaching a decision. Application required. Deadline: April 30.

The Minas Basin Pulp and Power Company Limited Scholarships

Preference will be given to students from the Atlantic Provinces, the first studying Civil Engineering. The scholarship is awarded to the student with the highest academic achievement in the course “Corrosion an Degradation of Materials” or to an undergraduate student who receives top marks in a corrosion-related research project. The winner is expected to meet the local NACE International Section members and encourage to become a student member with the initial membership fee covered by the membership. Deadline: September 30.

The Minas Basin Scholarship

This award was established in 1985. Eligible candidates must have fulfilled or expect to fulfill the minimum entrance requirements into third year of the undergraduate Civil Engineering program in the Faculty of Engineering. The award is made on the basis of the applicant’s academic record at the Associated University or at Dalhousie. Selection is carried out by the Scholarships and Awards Committee of the Faculty of Engineering on the recommendation of the Chair of the Civil Engineering program. Application required. Deadline: April 30.

The George Geoffrey Meyrath Scholarship

Dr. George Geoffrey Meyrath established this award of $1,000. Eligible students are registered in the senior year of Civil Engineering in the Faculty of Engineering. The award is based primarily on the academic record of the applicant during the junior year, but will also take into account personality and leadership ability. A letter of nomination or application should convey the nominee’s or applicant’s own worthiness of the award. Selection will be carried out by the Scholarships and Awards Committee of the Faculty of Engineering in consultation with the Chair of the Civil Engineering program. Application required. Deadline: September 30.
Dalhousie. This award of $1,000 is variable up to three years or more, subject to maintenance of an acceptable academic average. Eligible candidates must be "black" Canadian-born in Nova Scotia. The scholarship is awarded primarily on the basis of the applicant’s academic record for admission into third year and on the basis of the academic record at an Associated University or at the University entrance level. Other factors such as personality, initiative, community involvement and other awards held by the applicant may also be considered. Application required. Deadline: April 30.

Newfoundland and Labrador Alumni Undergraduate Scholarship
This scholarship of $1,000 was established by the St. John’s Newfoundland Alumni Branch. The scholarship is awarded on the basis of the applicant’s academic record (first class mandatory), with preference given to students who were residents of Newfoundland and Labrador immediately prior to attending university. The selection committee may consider other criteria in reaching a decision. The student must be registered in year four at Dalhousie in a program in Architecture, Planning, Engineering, or Computer Science. Application required. Deadline: September 30.

Everette Patterson Memorial Scholarship
This scholarship, valued at $2,000, was set up by a bequest from the estate of the late Allan D. Nickerson. It was established in memory of Allan D. Nickerson to promote academic excellence in Engineering studies. It is awarded primarily on the basis of the applicant’s academic record (first class standing). Mr. Nickerson graduated from the Nova Scotia Technical College in 1929. He received an Honorary degree (DEng) from the College in 1969. Nickerson to promote academic excellence in Engineering studies. It is awarded primarily on the basis of the applicant’s academic record while in attendance at this University. The Selection Committee may also weigh other factors in reaching a decision. Application required. Deadline: September 30.

Bruce and Dorothy Rosetti Engineering Undergraduate Scholarships
Bruce and Dorothy Rosetti established this award of $1,000 for men and women students who are registered in the penultimate year of a program in the Faculty of Engineering. The scholarship is awarded on the basis of the applicant’s academic record at the University and in the initial two years of study. Application required. Deadline: April 30.

Dr. Edward (Ted) Rhodes Scholarship in Engineering
Dr. Edward Rhodes, former President of the Technical University of Nova Scotia and former Principal of Dalhousie has established an annual scholarship to a third or fourth year Engineering student who has maintained an interest in music or the arts. Application required. Deadline: September 30.

Howard Ripley Scholarship
At the bequest of Howard Ripley, an endowment was established in 1935 to support one or more undergraduate scholarships annually to students registered in the Mechanical Engineering program. Professor Ripley graduated from NS Technical College in 1933. The award is based on academic excellence, with a preference given for alumni of Charles P. Allen High School, Bedford, NS. Subject to annual review, the scholarship is renewable so long as the recipient maintains an academic standing in the top quartile of all students registered in the Mechanical Engineering program. Application deadline: April 30.

The Nova Scotia Women in Engineering Scholarship
This scholarship, valued at $2,000, was established by the St. John’s Newfoundland Alumni Undergraduate Scholarship. The scholarship is awarded on the basis of the applicant’s academic record. The scholarship is awarded on the basis of the applicant’s academic record. Eligible candidates are registered in the Faculty of Engineering at Dalhousie. The selection committee may weigh other factors in reaching a decision. Application required. Deadline: September 30.

Bruce and Dorothy Rosetti Engineering Undergraduate Scholarships
Bruce and Dorothy Rosetti established this award of $1,000 for men and women students who are registered in the penultimate year of a program in the Faculty of Engineering. The scholarship is awarded on the basis of the applicant’s academic record at the University and in the initial two years of study. Application required. Deadline: April 30.

The Bruce and Dorothy Rosetti Bursary Scholarship
This bursary of $1,000 was established by the St. John’s Newfoundland Alumni Branch. The scholarship is awarded on the basis of the applicant’s academic record. Application required. Deadline: April 30.

The Shaw Group Scholarship in Civil Engineering
Since 1999, The Shaw Group Limited has awarded annually a one-year scholarship for the student who achieves the highest GPA within Civil Engineering studies and who has completed the penultimate year in Civil Engineering studies. To be eligible for the $2,500 award, a student must have been born in, and have a permanent residence in Atlantic Canada. The Scholarships and Awards Committee of the Faculty of Engineering selects the winner. Application required. Deadline: September 30.

The C. W. S. Sales Memorial Scholarships
In 1960, William Stairs, Son & Morrow Limited of Halifax, on the occasion of the 25th anniversary of the company in Nova Scotia. Eligible candidates are registered in the penultimate year of a program in the Faculty of Engineering. The scholarship is awarded on the basis of the applicant’s academic record. Eligible candidates are registered in the penultimate year of a program in the Faculty of Engineering. The scholarship is awarded on the basis of the applicant’s academic record. Application required. Deadline: September 30.

Dr. Edward (Ted) Rhodes Scholarship in Engineering
Dr. Edward Rhodes, former President of the Technical University of Nova Scotia and former Principal of Dalhousie has established an annual scholarship to a third or fourth year Engineering student who has maintained an interest in music or the arts. Application required. Deadline: September 30.

The Bruce and Dorothy Rosetti Bursary Scholarship
This bursary of $1,000 was established by the St. John’s Newfoundland Alumni Undergraduate Scholarship. The scholarship is awarded on the basis of the applicant’s academic record. Application required. Deadline: April 30.

The C. W. S. Sales Memorial Scholarships
In 1960, William Stairs, Son & Morrow Limited of Halifax, on the occasion of the 25th anniversary of the company in Nova Scotia. Eligible candidates are registered in the penultimate year of a program in the Faculty of Engineering. The scholarship is awarded on the basis of the applicant’s academic record. Application required. Deadline: September 30.

Dr. Edward (Ted) Rhodes Scholarship in Engineering
Dr. Edward Rhodes, former President of the Technical University of Nova Scotia and former Principal of Dalhousie has established an annual scholarship to a third or fourth year Engineering student who has maintained an interest in music or the arts. Application required. Deadline: September 30.

Howard Ripley Scholarship
At the bequest of Howard Ripley, an endowment was established in 1935 to support one or more undergraduate scholarships annually to students registered in the Mechanical Engineering program. Professor Ripley graduated from NS Technical College in 1933. The award is based on academic excellence, with a preference given for alumni of Charles P. Allen High School, Bedford, NS. Subject to annual review, the scholarship is renewable so long as the recipient maintains an academic standing in the top quartile of all students registered in the Mechanical Engineering program. Application deadline: April 30.

The Nova Scotia Women in Engineering Scholarship
This scholarship, valued at $2,000, was established by the St. John’s Newfoundland Alumni Undergraduate Scholarship. The scholarship is awarded on the basis of the applicant’s academic record. Eligible candidates are registered in the penultimate year of a program in the Faculty of Engineering. The scholarship is awarded on the basis of the applicant’s academic record. Application required. Deadline: September 30.

The Bruce and Dorothy Rosetti Bursary Scholarship
This bursary of $1,000 was established by the St. John’s Newfoundland Alumni Undergraduate Scholarship. The scholarship is awarded on the basis of the applicant’s academic record. Application required. Deadline: April 30.

The Shaw Group Scholarship in Civil Engineering
Since 1999, The Shaw Group Limited has awarded annually a one-year scholarship for the student who achieves the highest GPA within Civil Engineering studies and who has completed the penultimate year in Civil Engineering studies. To be eligible for the $2,500 award, a student must have been born in, and have a permanent residence in Atlantic Canada. The Scholarships and Awards Committee of the Faculty of Engineering selects the winner. Application required. Deadline: September 30.

The C. W. S. Sales Memorial Scholarships
In 1960, William Stairs, Son & Morrow Limited of Halifax, on the occasion of the 25th anniversary of the company in Nova Scotia. Eligible candidates are registered in the penultimate year of a program in the Faculty of Engineering. The scholarship is awarded on the basis of the applicant’s academic record. Application required. Deadline: September 30.
The profile of a student who has demonstrated high academic achievement, community service and financial need. Eligible candidates must be graduates of a high school in the Maritime Provinces (NS, NB, PEI). Application deadline: April 30

The Walter Gardner Stanfield Scholarship
The Walter Gardner Stanfield bequest provides two awards, valued at $1,000 each, to students who fulfil or are expected to fulfill the minimum (entrance) requirements into third year of Engineering or Computer Science. Application required. Deadline: April 30.

Dr. A. E. Stevens Scholarship
This $1,000 scholarship was established in 1981 in honour of Dr. A. E. Stevens, Director of Administration of the Nova Scotia Technical College and Acting President from 1975-1977. The award is made on the basis of scholarship, personality and leadership ability. Eligible students are registered in the senior year of the BEng in the Faculty of Engineering. Application required. Deadline: September 30.

The Weldon Scholarship
The Estate of Dr. R. S. Weldon established this award of $450 per year. It is renewable for two years, subject to maintenance of a high academic standing. Eligible students are to be registered in the Mechanical Engineering program in the Faculty of Engineering of this University. The award is based on the academic record of the applicant during year three of the program. Application required. Deadline: September 30.

The G. P. Wilson Engineering in Business Scholarship
This scholarship was established to honour Peter Wilson, born in Truro, and who attended King's College and completed his Engineering Diploma at Dalhousie. He graduated as a Mechanical Engineer from the Nova Scotia Technical College (NSTC) and went on to complete a Masters in Engineering Production in the area of Operations Research at the University of Birmingham in England. Professor Wilson was Executive Director of the Atlantic Industrial Research Institute, served as a Professor in Industrial Engineering, and was head of the Department of Mechanical Engineering at the Technical University of Nova Scotia and Dalhousie for more than 20 years. The G. P. Wilson Engineering in Business Scholarship is awarded to students who have completed the first year of engineering at any Canadian university, and who show outstanding promise to use engineering skills to improve Canadian business. The scholarship, in the amount of $1,000 per term, is tenable at Dalhousie University in years three, four and five of the Industrial Engineering program. This scholarship is renewable for occupants maintaining a GPA of 3.5 in each subsequent academic study term. Interested students must complete an application and provide an essay discussing their views on engineering in business. Deadline: January 15.

G. Faculty of Health Professions
Unlike other units, students may apply for these awards directly for details regarding application processes and deadlines.

1. School of Health and Human Performance

The Freda N. Wales Memorial Scholarship
This is an in course award given to a student entering the third or fourth year of study. The student must meet a commitment to pursuing a program specializing in outdoor leadership at Dalhousie University. Selection will be based on academic achievement and professional ability. Apply through the School.

VIIIth Pan American Wheelchair Games Scholarship
This is an in course award given to a student entering the third or fourth year of study in the School. The student must be committed to pursuing study in the area of recreation and leisure for the disabled. Selection is based on academic and professional capability.

2. College of Pharmacy

Samffi Antoin Scholarship
This scholarship is to be presented annually to an outstanding pharmacy student who has successfully completed one or many years at the College of Pharmacy.

The Ralph H. Jenkins Memorial Pharmacy Scholarship
This scholarship is awarded by the Prince Edward Island Pharmaceutical Association to a student from Prince Edward Island who has achieved a high academic standing.

The Col. J. B. B. MacKenzie Scholarship
This scholarship is awarded by the New Brunswick Pharmaceutical Society to a student from New Brunswick who excels in the first year courses of the Pharmacy curriculum.

The Dr. Jesse I. MacKnight Scholarship
This scholarship is awarded by the New Brunswick Pharmaceutical Society to the student from New Brunswick who excels in the second year courses of the Pharmacy class.

The New Brunswick Pharmaceutical Society Scholarship
This scholarship is awarded by the New Brunswick Pharmaceutical Society to the student from New Brunswick who excels in the third year courses of the Pharmacy curriculum.

3. School of Social Work

M. Caroline Prince Scholarship
An endowment of funds by the late M. Caroline Prince for the benefit of the School of Social Work provides for the award of one or more scholarships to students enrolled either in full time or part time study leading to the baccalaureate degree in Social Work. The award is made at the end of the winter term upon recommendation of course instructors to the School’s Bachelor of Social Work committee.

Calvin Ruck Scholarship
For BW and MSW African Nova Scotian students who have demonstrated a desire to improve the social conditions and further the interests of African Nova Scotian/Canadian people and their communities through the study and practice of Social Work. Careful consideration will be given to the purposes and vision of NAACP and to the qualities of courage, generosity, patience, and leadership that characterize Dr. Ruck’s life and work. Application required.

H. Faculty of Management

Unlike otherwise stated, these scholarships are administered by the academic unit. Please consult the departments directly for details.

Acadian Lines Limited Scholarship
Acadian Lines Limited has established a fund to provide a scholarship to a student, beyond first year, who has demonstrated superior academic performance in the preceding year(s) of the commerce program and, who has demonstrated outstanding leadership in the University’s program of intramural athletics.

The Wilfred R. Adam Scholarship
A scholarship is offered to the student in Commerce who, at the end of third year, has attained the highest average mark in COMB 1101, 2102, 3105. The endowment for this scholarship is provided by funds and co-religionists of the late Professor Adam. Application is not required.

The Vincent Chew Memorial Endowment
This award is given annually to the top academic student in the final year of the Bachelor of Management Bachelor of Science (Recreation) who demonstrates strong leadership, organizational and communication skills through volunteer work, extracurricular or school activities. In the event of students equally meeting the criteria above, preference will be given to a deserving student from New Brunswick or Nova Scotia.

The Eaton Foundation Scholarship in Business Studies
A scholarship will be awarded annually to a student entering fourth year in the Commerce program who has the highest average mark in Introduction to Marketing, Consumer Behaviour, and Marketing Research, and who has demonstrated high academic standing throughout his or her previous years of study. The award was established by the Eaton Foundation, a philanthropic organization dedicated to supporting the arts, education, health, and social welfare across Canada with the generous support of the T. Eaton Co. Limited and Mr. John David Eaton. Application not required.

Stewart Lockie Gibson Scholarship in Commerce
Several scholarships of varying amounts will be awarded annually to third and fourth year students of scholarship standing and good character who are proceeding to a degree in Commerce. Application not required. Awarded automatically by the Registrar’s Office.
Samuel S. Jacobson Scholarship

A bequest of the late Samuel S. Jacobson, of Yarmouth, Nova Scotia, enables one or two scholarships or bursaries. Preference is to be given to Nova Scotia students who are proceeding towards the Bachelor of Commerce degree. Awarded automatically by the Registrar's Office. Application not required.

The Harry Marplant Scholarships in Commerce

A bequest of the late Harry Marplant, of Yarmouth, Nova Scotia, enables one or two scholarships per year to be awarded to students working towards degrees in Commerce. These will normally be awarded to students in their third or fourth years. Application not required. Awarded automatically by the Registrar's Office.

McCord Printing and Typsetting Limited Scholarship

The business firm of McCord Printing and Typsetting Limited established an endowment in 1985 to provide annually for a scholarship to a student in the School of Business. The scholarship is open to a student, beyond first year, who has distinguished himself or herself scholarly and/or in extracurricular activities. Application required.

Norman Newman Family Business Award

This scholarship is offered to a student with a background of business and the community. For students beyond first year in the Commerce program, Management program, or in the MBA program, a competition involving a case study of a family business is the basis of awarding of the scholarship, with a first and second place winner. Application required.

The Commodore Bruce S. Oland Scholarship

An annual scholarship that alternates between the Department of English and the Faculty of Management. Awarded automatically by the Registrar's Office. Application not required.

The Sagewood Group Award for Entrepreneurship

This is an annual award designed to encourage entrepreneurship among Bachelor of Commerce students who have completed at least two full years. The scholar will be awarded an amount of $500 plus the value of a semester of entrepreneurship-related activities. The criteria for selection will include academic standing (GPA of 3.0 or greater), enrolment in the entrepreneurship curriculum (or equivalent), and a written proposal on why the student intends to pursue an entrepreneurial path. The award will be administered through the Norman Newman Centre for Entrepreneurship.

Ronald G. Smith Scholarship

This scholarship was established in recognition of the distinguished service rendered by Ronald G. Smith. An amount of $500 will be awarded to a Nova Scotia student entering the fourth year of the Bachelor of Commerce or Bachelor of Management student wishing to pursue entrepreneurship-related activities. The criteria for selection will include academic standing (GPA of 3.0 or greater), enrolment in the entrepreneurship curriculum (or equivalent), and a written proposal on why the student intends to pursue an entrepreneurial path. The award will be administered through the Norman Newman Centre for Entrepreneurship.

The Percy Berton Jellows Scholarships

Established in 2008 to recognize Edward Berton’s contributions to the School of Business, the annual fellowship is for a third or fourth year Bachelor of Commerce or Bachelor of Management student wishing to pursue a career in entrepreneurship. Application required.

The Constance MacFarlane Scholarship

An endowment fund has been established to provide a scholarship to a deserving student in the second or subsequent year of the Honours program in either biology or marine biology. Candidates must have completed at least one course in each of biology and botany.

The Carl Mushkat Memorial Scholarships

The Carl Mushkat Memorial Fund was established at Dalhousie University in 1979 as a bequest under the Will of the late Carl Mushkat. The fund provides scholarships to students in mathematics or science.

NewPage-Port Hawkesbury Mill Undergraduate Scholarship in Arts or Science

On the occasion of their 25th Anniversary, Stans Farms have established an endowment to provide one undergraduate scholarship open to students in Arts and Science. To be eligible, candidates must reside in Nova Scotia, have demonstrated academic excellence and have exhibited a desire to learn. Students will be considered after one year at Dalhousie.

The Alan Pollock Scholarship

This scholarship of $1,000 was established by the Scott North British Society in Halifax in memory of the Rev. Dr. Alan Pollock. The awardee will be a second year student in the College of Arts and Science at Dalhousie University.

Betty Spencer Scholarship

Betty Spencer was born in Saint John, New Brunswick in 1910. She graduated from Saint John Vocational School and worked for a time at Wasson's Pharmacy where she met her husband. They retired in Bangor, Maine and later in St. Andrews, New Brunswick. Although Betty had no specific connection to Dalhousie, she generously bequeathed this endowment through her Will. Preference is given to students from the Atlantic provinces and recipients cannot hold other Dalhousie scholarships or bursaries.

The Rose Stewart Smith Scholarships

A significant bequest established these memorial scholarships for students who excel in the sciences or mathematics.

The following scholarships are administered by the Faculty of Science. Please consult the departments directly for details.

Faye Sibley Undergraduate Research Award

Undergraduate students wishing to obtain research experience under the supervision of a grant holding faculty member over the summer should submit the NSERC Undergraduate Summer Research Award application to their department. Eligible students for the Faye Sibley Award must be in a 20 credit BSc program at Dalhousie University or at King's College. The $5,000 award is tenable during the period of May 1 to August 31 and is supplemented by additional funds. The award is distributed to the best applicant(s) on behalf of Faye (Naugle) Sibley, who graduated from Dalhousie University in 1953 with a major in biochemistry. The Faye Sibley Award is the top Faculty of Science undergraduate research award. See your department for deadlines and procedures.

Laing Summer Undergraduate Research Awards

Undergraduate students wishing to obtain research experience under the supervision of a grant holding faculty member over the summer should submit the NSERC Undergraduate Summer Research Award application to their department. Eligible students for the Laing Summer Research Award must be in a 20 credit BSc program at Dalhousie University or at King's College. The $5,000 award is tenable during the period of May 1 to August 31 and is supplemented by additional funds. The award is distributed to the best applicant(s) on behalf of John and Emily Laing Foundation. See your department for deadlines and procedures.

Warr Summer Undergraduate Research Awards

Undergraduate students wishing to obtain research experience under the supervision of a grant holding faculty member over the summer should submit the NSERC Undergraduate Summer Research Award application to their department. Eligible students for the Warr Award must be in a 20 credit BSc program at Dalhousie University or at King's College and the student must be born in Nova Scotia and have 'bona fide' residence in Nova Scotia. The $1,000 award is tenable during the period of May 1 to August 31 and is supplemented by additional funds. The award is distributed to the best applicant(s) on behalf of John Richard Freeman Warr Memorial. See your department for deadlines and procedures.

1. Biology

Hugh P. Bell Scholarship in Biology

In 1950 the Class of 1928 established the H. P. Bell Fund to provide one or more annual scholarships. Each year the Biology Department will select the most
Awards

3. Earth Sciences

J. Ewart Blanchard Memorial Scholarship
This scholarship was established in memory of Dr. J. Ewart Blanchard 1921 - 2003. Dr. Blanchard was an early physics pioneer in Nova Scotia. He was the first geophysicist appointed to Dalhousie's Physics Department and received an Honorary Degree from Dalhousie in 2000. One or more scholarships will be awarded each year to students enrolled in the degree programs of either the Department of Physics and Atmospheric Science or the Department of Earth Sciences who have achieved academic excellence and best exemplifies the qualities of initiative, experimental skill, leadership and enthusiasm for geophysics.

Canadian Institute of Mining and Metallurgy Earth Science Scholarship for New Brunswick Students
Awarded to a student entering second or subsequent year in an earth science discipline. Applicants must have been born in New Brunswick or resided in New Brunswick for seven years, or have his/her immediate family reside in that province.

Canadian Society of Exploration Geophysicists Scholarship
This scholarship is available to a student attending Dalhousie University and will be awarded to a Canadian citizen with first class standing during the first three years of the class.

J. Ewart Blanchard Memorial Scholarship
This scholarship was established in memory of Dr. J. Ewart Blanchard 1921 - 2003. Dr. Blanchard was an early physics pioneer in Nova Scotia. He was the first geophysicist appointed to Dalhousie's Physics Department and received an Honorary Degree from Dalhousie in 2000. One or more scholarships will be awarded each year to students enrolled in the degree programs of either the Department of Physics and Atmospheric Science or the Department of Earth Sciences who have achieved academic excellence and best exemplifies the qualities of initiative, experimental skill, leadership and enthusiasm for geophysics.

Canadian Institute of Mining and Metallurgy Earth Science Scholarship for New Brunswick Students
Awarded to a student entering second or subsequent year in an earth science discipline. Applicants must have been born in New Brunswick or resided in New Brunswick for seven years, or have his/her immediate family reside in that province.

Canadian Society of Exploration Geophysicists Scholarship
This scholarship is available to a student attending Dalhousie University and will be awarded to a Canadian citizen with first class standing during the first three years of the class.

J. Ewart Blanchard Memorial Scholarship
This scholarship was established in memory of Dr. J. Ewart Blanchard 1921 - 2003. Dr. Blanchard was an early physics pioneer in Nova Scotia. He was the first geophysicist appointed to Dalhousie's Physics Department and received an Honorary Degree from Dalhousie in 2000. One or more scholarships will be awarded each year to students enrolled in the degree programs of either the Department of Physics and Atmospheric Science or the Department of Earth Sciences who have achieved academic excellence and best exemplifies the qualities of initiative, experimental skill, leadership and enthusiasm for geophysics.

8. Psychology and Neuroscience

Briner Memorial Scholarship in Psychology
The Charles J. Briner Memorial Fund was established during 1971 in memory of the late Dr. Briner, Acting Chairman of the Department of Psychology. The income is awarded to a third year Honours student. Students eligible for the Honours Certificate in Psychology in the year equivalent to the fourth year of the Honours Psychology program are eligible for the prize. The Briner Memorial Scholarship is restricted to Dalhousie Honours Psychology students and is not open to joint Honours students from other departments or other universities. The scholarship will be awarded to the student who shows the greatest potential as a researcher in experimental psychology.

J. College of Sustainability

Yinger Gately Scholarships
A fund has been established to provide one or more annual scholarships for third and fourth year students enrolled in the Environment, Sustainability and Society Major Honours degree, based on academic achievement in the previous year.

V. Prizes, Medals, and Awards

Unless otherwise noted, the following awards are administered by the academic unit or the Department of Athletics.

A. General - All Faculties

The Alumni Association Medal
The Society of Alumni Association provides a medal which is awarded each year to the graduating student in the University who has exhibited the most outstanding qualities of personality, scholarship and leadership during a course of studies at the campus. Selection is carried out by a Committee appointed by the Awards Committee of the DalTech Alumni Association.
1. Candidates for these prizes must be registered full-time undergraduate or graduate students at Dalhousie University.

2. Three copies of each composition must be sent in by the candidate:
   a) These compositions must be typewritten, double spaced and on one side of the paper only.
   b) A pseudonym is to be typed at the end of each typewritten entry and the pseudonym must be different for each, different pseudonyms may be used for prose and poetry.
   c) Compositions are to be accompanied by a sealed envelope bearing the same pseudonym to be opened by the judge.
   d) The envelope shall contain a typewritten copy of the poem as it is to be submitted, the name and address of the candidate should not appear on the poem.

3. Candidates submitting more than one prose entry must use the same pseudonym for each, different pseudonyms may be used for prose and poetry.

4. Candidates for the DeMille Prize may submit one entry each of the essay and short story sections.

5. The poetry contest winner of a first prize is eligible to compete again, and no winner of a second prize is eligible for a second prize in the same year.

6. The poetry contest winner of a first prize is eligible to compete again, and no winner of a second prize is eligible for a second prize in the same year.

7. Entries must reach the Department of English on the deadline.

8. Entries are adjudicated by a panel of judges which includes a professional writer. The decision of the judges is final.

9. No prize will be awarded for any composition that does not attain to a sufficiently high standard of merit.

10. The Dalhousie Review will offer the first option to publish winning compositions. A copy of each winning composition is deposited in the University archives. Contestants retain ownership of copyright.

Awards 623
Awards

The Kim Rilda LeBlanc Memorial Award in Healing and the Arts

This award is established to recognize outstanding interdisciplinary initiatives between the arts and the health sciences, and it honours the memory of this former graduate student in English. The competition is open to undergraduate and graduate students in the Faculties of Arts and Social Sciences, Medicine, and Health Professions. Faculty may nominate students who have completed an outstanding project, thesis, or research essay that combines work in the humanities or the arts with work in medicine or health care. Nomination letters, accompanied by three copies of the candidate’s project, thesis, or research essay are to be submitted by April 15 each year to The Chair, Kim Rilda LeBlanc Memorial Award Committee, Department of English.

This medal is awarded to the student who is judged to be the leading First Class standing among graduates of technical programs.

Governor General’s Bronze Medal

Offered by His Excellency the Governor General of Canada, this medal is awarded on graduation to the recipient who has demonstrated good academic achievement combined with leadership qualities and contribution to University life. The Association will recommend a candidate or candidates to the Head of Student Services.

The Robert and Katherine MacDonald Award

An endowment has been established to provide an annual prize for Chinese students at Dalhousie. The recipient will be engaged in undergraduate studies and be a member of the Dal-TUNS Chinese Students’ Association or its successor. The recipient will have demonstrated good academic achievement combined with leadership qualities and contribution to University life. The Association will recommend a candidate or candidates to the Head of Student Services.

Another award

In honour of a former swim coach, Nigel Kemp, one or more annual awards are given to members of the Dalhousie University varsity swim team. Entering returning students must have achieved a minimum average of 80% from high school. Returning students must have achieved a minimum GPA of 3.0. Gender equity is considered by the selection body.

Gordon S. Rankin Memorial Scholarship

Gordon Rankin, born in Halifax in 1933, graduated from Dalhousie in 1957 with a Bachelor of Commerce degree. He played both varsity football and basketball, holding the position of Captain for a period of time on both teams. As a continuing tribute to Gord, this scholarship was formed to assist athletes in financing their time at Dalhousie. This award is coordinated through the International Health Office.

B. Convocation Awards

The following four awards are administered by the Registrar’s Office and are awarded at Convocation.

Governor General’s Silver Medal

Offered by His Excellency the Governor General of Canada, this medal is awarded to the undergraduate student who has achieved the highest academic standing among graduates of baccalaureate programs.

Governor General’s Bronze Medal

Offered by His Excellency the Governor General of Canada, this medal is awarded to the undergraduate student who has achieved the highest academic standing among graduates of technical programs.

University Silver Medal

This medal is awarded to the student who is judged to be the leading first class honors student among graduates of baccalaureate programs. The recipient cannot have received the Governor General’s Silver Medal.

Avery Prize

This prize, sponsored by J. F. Avery, MD, will be awarded on graduation to the student standing highest among graduates of the general degree program. The recipient cannot have received the Governor General’s Silver Medal or University Silver Medal.

For the aforementioned medals and prize, a student who is completing a second Dalhousie degree will have only those courses required for a second degree used so as to determine their cumulative average. In addition, any disciplinary action by the Senate Discipline Committee shall be deemed sufficient cause for any student to be ineligible.

C. Faculty of Agriculture

For more information on deadlines and application procedures, please visit www.moneymatters.dal.ca

Canadian Agricultural Economics Association Prize

The Canadian Agricultural Economics Association presents a book prize to a graduating student from the Agricultural Economics or Agricultural Business option of the BSc (Ag) program. This prize is selected on the basis of overall performance.

Canadian Society of Animal Science Prize

The Canadian Society of Animal Science presents a book prize to the student in the fourth year of the Animal Science or Aquaculture options of the BSc (Ag) program. This prize is selected on the basis of outstanding scholarship.

Cobequid Dog Club Scholarship

Awarded to an Nova Scotian student who is admitted to a veterinary college.

K. de Gus Memorial Prize for Plant Science

Established in 1984, the Noel Eman Memorial Award is presented annually to a student in the fourth year of the Diploma in Technology (Enterprise Management) program who complete business plans during the business project course (MOSM 0225). A student who has received an FCC Farm Business Planning Award is not eligible for a second one. Cash prizes are distributed based on the number of submissions from participating students (as individuals or teams).

The Kim Rilda LeBlanc Memorial Award in Healing and the Arts

In memory of the late K. de Gus, a prize is awarded to a technical graduate. Selection is based on high standing in course work, and preference is given to students in the horticultural field.

The Ketchum Manufacturing Company Limited Prize is awarded to a graduate of Dalhousie who has demonstrated leadership in global health and a commitment to improving the health of marginalized communities during their time at Dalhousie. This award is coordinated through the International Health Office.

The Dr. Ron Steward Award for Student Leadership in Global Health

Dr. Ron Steward was introduced to scientific research by an undergrad research project, thus beginning a career in research and teaching. Research and teaching.

The Canadian Agricultural Economics Association Prize

The Canadian Society of Animal Science presents a book prize to a student in the fourth year of the Animal Science or Aquaculture options of the BSc (Ag) program. This prize is selected on the basis of overall performance.

The Dr. Gerry W. Friars Undergraduate Research Prize is awarded to the student who is judged to have completed the best written research report as part of the fourth-year project requirements. Dr. Friars, Class of 1948, was introduced to scientific research by an undergrad research project, thus beginning a career in research and teaching.

The Canadian Agricultural Economics Association Prize

The Canadian Society of Animal Science presents a book prize to a student in the fourth year of the Animal Science or Aquaculture options of the BSc (Ag) program. This prize is selected on the basis of overall performance.

The Dr. Gerry W. Friars Undergraduate Research Prize is awarded to the student who is judged to have completed the best written research report as part of the fourth-year project requirements. Dr. Friars, Class of 1948, was introduced to scientific research by an undergrad research project, thus beginning a career in research and teaching.

The Canadian Agricultural Economics Association Prize

The Canadian Society of Animal Science presents a book prize to a student in the fourth year of the Animal Science or Aquaculture options of the BSc (Ag) program. This prize is selected on the basis of overall performance.

The Dr. Gerry W. Friars Undergraduate Research Prize is awarded to the student who is judged to have completed the best written research report as part of the fourth-year project requirements. Dr. Friars, Class of 1948, was introduced to scientific research by an undergrad research project, thus beginning a career in research and teaching.
Dr. Allen and Barbara MacKay Scholarship
Awarded annually to a student from the Faculty of Agriculture admitted to the Atlantic Veterinary College. In recognition of his long association with the practice of veterinary medicine in Nova Scotia, Dr. J. Allen MacKay, Class of 1943, has established this scholarship.

Novotels Award
The Novotels Award is presented to the top all-round student graduating from the Veterinary Technology program who has particularly excelled in the area of parasitology.

Patterson Law Prize
Patterson Law offers a prize to the student with the highest standing in MGMT 2001 in the previous year.

Phillip Steel Memorial Leadership Award
An award will be presented annually to a student who has exhibited outstanding leadership at Dalhousie Faculty of Agriculture and/or within the community. Nominations for the award will be received by a committee representing the Student Leadership program at the Faculty of Agriculture and a member of the sponsoring body for the award (Nova Scotia/Newfoundland Holstein Branch). The committee will select an awardee from those nominated who best represents the leadership qualities and performance in the past year or number of years that would be a model for others. Selection criteria may also include academic performance, financial need and the other awards that have been granted to the nominee.

University Medal in Agricultural Business
Awarded to the graduating Agricultural Business student with the highest standing.

University Medal in Agricultural Economics
Awarded to the graduating Agricultural Economics student with the highest standing.

University Medal in Animal Science
Awarded to the graduating Animal Science student with the highest standing.

University Medal in Aquaculture
Awarded to the graduating Aquaculture student with the highest standing.

University Medal in Engineering
Awarded to the graduating Engineering student with the highest standing.

University Medal in Environmental Landscape Horticulture
Awarded to the graduating Environmental Landscape Horticulture student with the highest standing.

University Medal in Environmental Sciences
Awarded to the graduating Environmental Sciences student with the highest standing.

University Medal in Integrated Environmental Management
Awarded to the graduating Integrated Environmental Management student with the highest standing.

University Medal in International Food Business
Awarded to the graduating International Food Business student with the highest standing.

University Medal in Plant Science
Awarded to the graduating Plant Science student with the highest standing.

D. Faculty of Architecture and Planning

Leslie Oler Prize in Community and Environmental Design
This $3,000 prize is presented to one or more students in the Bachelor of Community Design program or the Bachelor of Environmental Design Studies program, based on a design proposal for urban beautification in the Halifax Regional Municipality. Apply to the Dean’s office by December 10.

1. Architecture

Bachelor of Environmental Design Studies Year Three Portfolio Prize
A prize is awarded to the student who has produced the best design portfolio at the end of year three in the BEDS program.

University Medal in Community Design
A University Medal has been established for the student with the highest academic standing in Community Design.

University Medal in Community and Environmental Design
This $1,000 prize is awarded to the student who has produced the best design portfolio at the end of year four in the BEDS program.

2. Planning

Community Design Achievement Award (second year)
This prize is awarded to the student with the highest cumulative average in the second year of the Community Design program.

Community Design Achievement Award (third year)
This prize is awarded to the student with the highest cumulative average in the third year of the Community Design program.

Community Design Service Prize
This prize is awarded to a graduating Community Design student who has made a significant contribution to community design beyond the School.

Community Design Thesis Prize
This prize is given in recognition of excellent work in completing the thesis project for the Bachelor of Community Design.

University Medal in Community Design
This medal is awarded annually to the graduate who has attained the highest academic standing in Community Design.

E. Faculty of Arts and Social Sciences

The Clay Ramsey of Nova Scotia Prize
To provide an annual prize to the student in the Faculty of Arts and Social Sciences who has written the best paper dealing with (any aspect of) the influence of Scottish culture within Canada. This award was established by the Clay Ramsey of Nova Scotia in recognition of the contribution of George Ramsay, 19th earl of Dalhousie, founder of Dalhousie University.

1. Canadian Studies

University Medal in Canadian Studies
A University Medal has been established for the student with the highest standing among those who graduate with First Class Honours.

2. Classics

Nicole Knox Award
The Nicole Knox Award was established by family, friends, faculty and students to honour the memory of Nicole Knox by supporting the annual prize. This award is given annually to the student who has achieved the highest success in the study of both Latin and Greek language.

University Medal in Classics
The Department of Classics offers to the top First Class Honours graduate a medal in recognition of superior achievement in Classics.

3. Contemporary Studies

University Medal in Contemporary Studies
The Department of Contemporary Studies offers to the top First Class Honours graduate a medal in recognition of superior achievement.

4. Creative Writing

University Medal in Creative Writing
Awarded to the top First Class Honours graduate for recognition of superior achievement in Creative Writing.

5. Early Modern Studies

University Medal in Early Modern Studies
The Department of Early Modern Studies offers to the top First Class Honours graduate a medal in recognition of superior achievement.

6. English

The Avice Bennett Prize
This prize ($100 plus a complete set of the New Canadian Library) is one of six established by Mr. Avice Bennett, Chairman and President of McCulland and Stewart to mark the company’s 90th anniversary and the 40th anniversary of the
New Canadian Library, of which the founding general editor was Dalhousie Professor Emeritus Dr. Malcolm M. Ross. It is awarded each year for the best essay on Canadian literature submitted from an undergraduate course at Dalhousie during the current academic year. Essays may have been written for courses in any department, but they should focus explicitly on a Canadian literary topic and not on history or culture more generally, and they must be written in English. Essays should be nominated by instructors; clean copies should be submitted by the specified date.

Barbara Bennett Chistik Prize
This prize is awarded annually to an outstanding first year student enrolled in introductory English at Dalhousie University. Section instructors will normally make nominations, which shall consist of a letter from the instructor on why the student should receive the award, the student’s final grade, and a sample essay. The prize winner will be determined by a selection committee consisting of one member of the Undergraduate Committee and the co-ordinator of tutor-markers in the English Department.

Graham Creighton Prize in English
Established by his son, Wilfrid Creighton, this prize is in honour of Graham Creighton, 1904 graduate of Dalhousie. Graham Creighton and his wife raised six children in their home on LeMarchant Street. All six children attended Dalhousie and graduated between 1915 and 1927. This prize is awarded annually to students majoring in English or in Honours English and entering their fourth year of study.

Samantha Li Award
The Samantha Li Memorial Award was established by family, friends, faculty, and students to honour the memory of Samantha Li by supporting the annual prize of approximately $350 for a student in the Honours program in English. The recipient chosen will most closely reflect the academic and personal qualities of Samantha Li: intellectual reach and creativity; a passion for the exploration of literature and ideas; generosity toward and engagement with fellow students and professors.

Paul McIsaac Memorial Prize
A memorial gift provides for an annual prize for an undergraduate student, who shows an engaging and original mind, in the second or third year of study in the Honours or Majors program in English.

Margaret Nicoll Pond Memorial Prize in English
A prize in English of about $500 per year has been endowed by Mr. F. H. Pond of Halifax in memory of his wife, the late Margaret Nicoll Pond, a gifted teacher of English and a devoted alumna and governor of Dalhousie University. The prize will be awarded, on recommendation of the Department, to a woman graduate of Dalhousie University who leads her class in English.

The James W. Fisher Upperclass Fellowship in English
Two fellowships are awarded by the English Department to outstanding students who propose to do graduate work in English at a university approved by the faculty.

The University Medal in English
Each year the Department of English offers a medal to the top First Class Honours graduate in recognition of superior achievement in the program.

Varma Prizes in Gothic Literature
These prizes were established to honour the memory and spirit of the late Devendra Varma who taught at Dalhousie University in the Department of English. Applicants should be undergraduate English majors or Honours English students. Prizes shall be awarded to the winners of a gothic short story contest.

European Studies
University Medal in European Studies
A University Medal has been established for the student with the highest standing among those who graduate with First Class Honours.

French

Prix de l’Alliance française
An annual book prize awarded to a third or fourth year student who has achieved outstanding results in the study of French language and literature. Suitable candidates are proposed by the Department before March 15. The award is bestowed at an official ceremony at the Alliance française in the Spring.

Alliance française is an internationally renowned non-profit organization with a mission to promote French language and culture.

Prix de l'Ambassadeur de Suisse au Canada
A book prize, the gift of the Ambassador of Switzerland in Canada, is awarded to a graduating student who has won distinction by their work in the French language. This award is conferred at a Departmental ceremony in the spring.

Prix du Conseil du Liban
A book prize, the gift of the Consul of Lebanon, is awarded to a graduating student who has demonstrated excellence in their work in the French language. This award is conferred at a Departmental ceremony in the spring.

Prof. & Mrs. Robert Loyal McIntosh Prize in French
This fund provides an annual prize for a Major or Honours student in the Department of French who has demonstrated a superior level of achievement in the core courses required for second year Major and Honours students. Currently these courses are 2048, 2250 and 2252.

Marcelle Cendres Sandhu Memorial Prize
Collington, friends and students of the late Marcelle Cendres Sandhu have established an annual prize to be awarded to a Major or Honours student in the Department of French who achieves excellence in third or fourth year French grammar courses.

Sahak Matij French Scholarship
This fund provides an annual prize for a Major or Honours student in the Department of French, who is raising a family. Students must show enthusiasm toward the study of French and exemplary effort in their studies.

University Medal in French
The top First Class Honours graduate will receive the University Medal in French, in recognition of superior achievement.

Gender and Women’s Studies

University Medal in Gender and Women’s Studies
A University Medal has been established for the student with the highest standing among those who graduate with First Class Honours.

German

Graham Creighton Prize in German
A prize in German of about $500 per year has been endowed by the late Mrs. Jeanette Goodman a bequest made to Dalhousie University to fund a prize(s) for the highest standing in German. This prize is awarded annually to an outstanding student who has demonstrated a superior level of achievement in German language. This award is conferred at a Departmental ceremony in the spring.

Marcelle Cendres Sandhu Memorial Prize
Colleagues, friends and students of the late Marcelle Cendres Sandhu have established an annual prize to be awarded to a Major or Honours student in the Department of French who achieves excellence in third or fourth year French grammar courses.

Prof. & Mrs. Robert Loyal McIntosh Prize in German
This fund provides an annual prize for a Major or Honours student in the Department of German, who is raising a family. Students must show enthusiasm toward the study of German and exemplary effort in their studies.

University Medal in German
The top First Class Honours graduate will receive the University Medal in German, in recognition of superior achievement.

History

The Edith and Rose Goodman Prize in History
Under the Will of the late Mrs. Jeanette Goodman a bequest was made to Dalhousie University to fund a prize(s) for the highest standing in History. The prize is awarded on the recommendation of the Department of History.

The Commonwealth History Prize
To facilitate and encourage the study of Commonwealth or British history, this prize is awarded annually for the best undergraduate essay on a topic relating to the history of Britain and/or the Commonwealth countries. The prize is funded by a gift from Dr. David Jessop and Dr. Karen Osterrieder.

University Medal in History
The top First Class Honours graduate in the Department of History is awarded a medal in recognition of superior achievement.

The Dr. George E. Wilson Prize in History
Under the Will of the late Mrs. Jeanette Goodman a bequest was made to Dalhousie University to fund a prize(s) for the highest standing in Canadian History. This prize is awarded on the recommendation of the Department of History.
12. History of Science and Technology

University Medal in History of Science and Technology

The History of Science and Technology program offers the top First Class Honours graduate a medal in recognition of superior achievement.

13. International Development Studies

University Medal in International Development Studies

A University Medal has been established for the student with the highest standing among those who graduate with First Class Honours.

14. Italian Studies

University Medal in Italian Studies

A University Medal has been established for the student with the highest standing among those who graduate with First Class Honours.

15. Linguistics

University Medal in Linguistics

A University Medal in Linguistics Program offers the top First Class Honours graduate a medal in recognition of superior achievement.

16. Music, Fountain School of Performing Arts

The Atlantic Barber Shop Harmony Award

The Nova Scotia Chapter of the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America has established a fund to award an annual prize to a student enrolled in an undergraduate degree program in Music, who, in the estimation of the School, demonstrates outstanding aptitude and achievement leading to a professional career in that field.

Professor Ray D. Byham Memorial Prize in Piano Studies

A prize established with donations made by family, colleagues and friends of Professor Ray D. Byham, who taught at Dalhousie from 1949-1993, to provide one (or more) annual prize(s) to a student(s) entering their fourth year piano studies. The prize is to be used to provide financial assistance toward continued piano performance studies at Dalhousie, a recognized piano-intensive workshop, a chamber music festival or similar event. The recipient will have a cumulative GPA of at least 3.5, with at least two years prior, consecutive residency in the Dalhousie Bachelor of Music (Piano Performance) program or equivalent.

James and Abbie Campbell Prize, Campbell Incentive Award

The School of Performing Arts may from time to time award prizes to outstanding students from the James and Abbie Campbell Memorial Fund. The Campbell Incentive Award may on occasion be awarded under special circumstances.

James A. Faraday Memorial Music Award

This annual scholarship is for a percussion student in the third or fourth year of a music degree program. To be considered, students must demonstrate a high standard of performance, a love for music, a positive attitude and a collaborative spirit. The Scholarship Committee will work in consultation with faculty members from the percussion program to choose an eligible student. The award will be made in the spring of each year. The award was established by family and friends to honour the memory of James A. Faraday, percussion teacher, mentor and friend, who inspired students at Dalhousie for over 30 years.

Dalhousie Alumni Association (Women’s Division) Medal in Music

The Women’s Division provides an annual medal to the graduating student who achieves the highest cumulative GPA in music subjects over the four year Bachelor of Music degree.

Dalhousie Women’s Alumni Prize

This prize is presented to the graduating student who has achieved a high cumulative average in music subjects during the four year Bachelor of Music degree program.

The Beatrice Davies Music Prize

A fund has been established by members of the Dalhousie community to mark Women’s Centennial Year (1985) at the University. The purpose of the fund is to provide an annual in-course prize to a female student in the Bachelor of Music program on the combined basis of high academic standing and performance ability. The prize is named after the first graduate in music in 1909.

The Ernst and Dorothy Heighes Memorial Prize

A prize established through bequests received from the estates of the late Dr. Ernst Heighes and his wife Dorothy, in the spirit of their keen interest and support for Dalhousie’s Applied Skills training programs and for the public performances of its students. Preference will be given to an outstanding student in the third or fourth year of the Bachelor of Music in Performance with a focus on voice and improvisation. The value of the prize shall not be less than $400.

The Lowe C. Huber Memorial Prize in Music

This prize is awarded annually from a fund in memory of the late mayor Lowe C. Huber bestowed by his widow and family, to an undergraduate Music student of outstanding potential in brass performance. The minimum value of this prize is $100.

The Erik Perith Memorial award

An award established to honour the memory of Erik Perith, a former Director of Cultural Activities at Dalhousie University. An annual prize will be awarded to a female vocal student who has completed the third year of a Bachelor of Music, or Bachelor of Arts Combined Honours, Music and Theatre, and who, in the opinion of the School, has demonstrated both outstanding achievement in vocal performance, and an aptitude for a career in opera and/or musical theatre. The prize will be awarded in conjunction with the opening night performance of the annual Opera Workshop.

Richardson Family Experiential Learning Award

This award provides financial aid for music students who are attending experiential learning workshops, festivals and conferences, based on nomination from department faculty members. Preference will be made to grant one $1,000 award to a student accepted in the Halifax Opera Workshop, or successor program, and the other $1,000 award to a student accepted into the Scotia Festival of Music, or successor program. This annual fund award was established by Bill Richardson, a graduate of Dalhousie’s Schulich School of Law, and by Colin and Debbie Richardson, both of whom worked in support of numerous music student productions in the Dalhousie Arts Centre.

The Royal Saint George’s Society of Halifax Prize in Music

The Royal Saint George’s Society of Halifax has established a prize in recognition of the University’s successful role in the musical training and cultural enrichment of the community. This prize will be awarded annually to a student entering the third or fourth year of an undergraduate degree program in music who, in the estimation of the School, shows particular potential as an instrumentalist.

The Georg Tintner Night concert Prize

This fund was established by family, colleagues and friends, to honour the musical legacy and spirit of Dr. Georg Tintner, conductor and Music Director of the Halifax Symphony Orchestra from 1983-1994 and devoted supporter of Dalhousie’s Music performance activities. An annual prize will be awarded to an instrumental or voice student enrolled in a music degree program who, in the estimation of the audition panel, demonstrates exceptional musical talent with the potential for a professional performance career. The prize will be awarded at the annual Concerto Night concert.

The William Orrin Trinca Recital Prize

The School of Performing Arts may, upon the recommendation of the Piano Faculty, award this prize to a piano student who has demonstrated a high level of performance on his/her third year or graduation recital. This prize will be awarded only when it is deemed warranted. This award is named after the late Canadian pianist and Dalhousie faculty member, William Trinca.

The William Trinca Scotia Festival Memorial Prize

This prize is awarded upon the recommendation of the Piano Faculty to a senior level Piano student who has achieved a high standard of performance. This prize is to be applied to tuition costs for participation in the Young Artists Program of the Scotia Festival of Music. This award is named after the late Canadian pianist and Dalhousie faculty member, William Trinca.

University Medal in Visual Arts

The University Medal in Visual Arts offers a medal to the highest ranking student of the year who graduates with the equivalent of a First Class Honours degree in the Bachelor of Music program.
17. Philosophy
The F. Hilton Page Memorial Prize in Philosophy
This annual prize is normally awarded to the honours graduate whose Honours essay is judged to be outstanding.

Dr. H. L. Stewart Memorial Scholarship
This prize is awarded to the student with the best record entering the final year of an Honours Philosophy degree program.

University Medal in Philosophy
The Department of Philosophy offers a medal to the top First Class Honours graduate in recognition of superior achievement in the program.

18. Political Science
The James H. Aitchison Award
In 1979, colleagues of Dr. J. H. Aitchison established a fund from which an annual prize would be awarded in recognition of the best undergraduate honours essay. The fund was established to honor Professor Aitchison who was instrumental in founding the Department.

Commonwealth Political Philosophy Prize
Established by John W. Beveridge (BA Hon 1971) for students who demonstrate interest and achievement in the field of political philosophy. The prize name derives from Commonwealth, understood as society and government that endeavours to serve and represent community, without tending towards a totalitarian system. This prize is awarded annually to the student who has achieved the highest grade in a course in political philosophy at Dalhousie University.

European Union Centre of Excellence (EUCE) Prize
Established by EUCE for the best essay on Europe and the European Union. The value of the prize is $100 and is open to all Dalhousie students.

The Eric Dennis Gold Medal
Established by Jennifer William Dennis and Mrs. Dennis, this medal will be awarded on graduation to the student who stands first among those taking First Class Honours in Government and Political Science. (This is the University Medal in Political Science.)

The H. B. McCulloch Memorial Prize in Political Science
This prize will be awarded annually to the student who, among all the first and second year students registered in introductory courses in political science, is judged to have written the best essay in the second term.

19. Religious Studies
University Medal in Religious Studies
A University Medal has been established for the student with the highest standing among those who graduate with First Class Honours.

20. Russian Studies
University Medal in Russian Studies
The Department of Russian Studies offers a medal to the top First Class Honours graduate in recognition of superior achievement in the program.

21. Sociology and Social Anthropology
The Rev. S. H. Prince Prize in Sociology
A bequest under the will of the late Dr. S. H. Prince established a fund to provide an annual prize to be available to students at either Dalhouse or King’s.

University Medal in Social Anthropology
The Department of Sociology and Social Anthropology offers a medal to the top First Class Honours graduate in the Social Anthropology program in recognition of superior achievement.

University Medal in Sociology
The Department of Sociology and Social Anthropology offers a medal to the top First Class Honours graduate in the Sociology program in recognition of superior achievement.

22. Spanish and Latin American Studies
Department of Spanish and Latin American Studies Citizenship Award
This Citizenship Award recognizes the contributions of an individual to build a community atmosphere within the Department of Spanish and Latin American Studies.

Dr. James E. Holloway, Jr. Memorial Prize
The Holloway Memorial Prize is awarded to a graduating student with an Honours degree (completed in the Department of Spanish and Latin American Studies) who has written a thesis with a focus upon Latin America.

Sylvia Coffey Memorial Award
This Sylvia Coffey Memorial Award is given to a female Spanish and Latin American Studies student studying in one of our programs abroad in Latin America.

The de Carpentier Memorial Prize
Established as a gift in memory of the late Norman S. and Helier S. de Carpentier and their sister, Phyllis de Carpentier Nielsen, the de Carpentier Memorial Prize is to be awarded on the recommendation of the Executive Committee of the Department to an outstanding student in the Department of Spanish and Latin American Studies.

The Reverend J. R. Hibbits Memorial Prize
To honour the memory of a scholar, donor, and friend of the department, this prize is awarded annually to the graduating student with the highest overall honours GPA.

University Medal in Spanish and Latin American Studies
The Department of Spanish and Latin American Studies offers a medal to the top First Class Honours graduate in recognition of superior achievement in the Spanish and Latin American Studies program.

23. Theatre, Fountain School of Performing Arts
Andrew and David Stitt Memorial Prize
To honour the memory of Theatre students Andrew and David Stitt, two prizes will be awarded annually to two students entering the third year of the Acting Program who have shown promise in, and passion for, acting.

Blackmore Award
This award was created by Neptune Theatre of Halifax to honour scenic carpenters John and William Blackmore. The award is given to a student in his or her third year of a Theatre BFA program who has shown promise in, and passion for, work in Technical Theatre and Stage Design.

Department of Theatre Awards Fund
This fund supports four awards to recognize the achievements of outstanding students in the Department of Theatre: the Basil Cook Award for students in Costume Studies, the Blanche Potter Award for students in Technical Scenography, the Martin Surette Award for students in Acting, and the Robert Merritt Award for students in Theatre Studies. The award will normally be made during the student’s third year of study in the School of Performing Arts.

Jopling Award for Out of Country Theatre Studies
Earnings from this fund are used to support an annual award to assist students enrolled in the School of Performing Arts to further their knowledge of theatre by study in another country during the summer. Eligible students must be enrolled full-time in a program of study in the School of Performing Arts and have completed at least one year (both fall and winter semesters) of their program of study. In addition, eligible students will have been accepted to study theatre at an institution in a country other than Canada.

University Medal in Theatre
The Department of Theatre offers the top First Class Honours graduate a medal in recognition of superior achievement.

Women’s Division - Dalhousie Alumni Association Medal in Costume Studies
This medal is presented annually to the graduating student with the highest cumulative GPA in the Costume Studies Program.

Christine Zinck Book Award
This award recognizes an outstanding graduating honours student in Theatre Studies.
24. Transition Year Program

Morrise Saffron Prize
A bequest under the will of the late Morris Saffron established an endowment to provide an annual prize to a student in the Transition Year Program who is judged to have made the greatest academic achievement during the year.

Jonathan Skete Memorial Prize
Friends, faculty and former students of the Transition Year Program have established an endowment from which to fund an annual prize. The award honours the memory of Jonathan Skete who, following completion of the TYP, was graduated with a BComm degree and then served several years with the RCMP. An annual prize is available to a Black student who is enrolled in the Transition Year Program. Contact the Director of the Program for details.

F. Faculty of Computer Science

Ada Byron Award
The Ada Byron Award recognizes the leadership and contributions of an individual to the promotion and development of women in computer science.

Citizenship Award
The Citizenship Award recognizes the contributions of an individual to building a community atmosphere within the Faculty of Computer Science.

Dean’s List Award
Students enrolled in an undergraduate major 20 credit program offered by the Faculty of Computer Science who, with at least 2.0 credits of courses offered at Dalhousie in the academic term being assessed, are automatically considered for the Dean’s List designation. Students are eligible to receive the award for each term in which they achieve a minimum 3.50 GPA for the term being assessed. Part-time students are also eligible for the Dean’s List if they have completed at least 1.5 credits during the academic year but less than 1.5 credits in any one term. Students cannot receive both a Dean’s List Award and a Sexton Scholar Award in any one term.

Gold, Silver and Bronze Awards
The Gold ($2,500), Silver ($2,000) and Bronze ($1,500) awards recognize the academic achievements of the top three students who are graduating second, third, and fourth years of study. To be eligible, students must be enrolled in an undergraduate major 20 credit program offered by the Faculty of Computer Science with at least 2.0 credits per term in the student's two academic terms prior to the award assessment, have completed at least five credits per year of study towards their computer science degree (including transfer credits), have completed all applicable CSCI core courses required for the degree and must have completed at least one academic term of 2.0 credits or more to complete for their computer science degree. All eligible students are automatically considered for these awards which are based solely on cumulative GPA. Students are assessed following the winter term.

Leadership Award
The Leadership Award recognizes the leadership and contributions of an individual in building a community atmosphere within the Faculty of Computer Science.

Mobil Oil Award
This award is given to the student with the highest GPA across CSCI 3120 and one of CSCI 3110 or CSCI 3111. Students are automatically assessed for the award at the end of the winter term or at their first eligibility.

Sexton Scholar Award
Students enrolled in an undergraduate 20 credit major program offered by the Faculty of Computer Science with at least 2.0 credits of courses offered at Dalhousie in the academic term being assessed, are automatically considered for the Sexton Scholar designation. Students are eligible to receive the award for each term in which they achieve a minimum 3.80 GPA for the term being assessed. Students cannot receive both a Dean’s List Award and a Sexton Scholar Award in any one term.

University Medal in Computer Science
A medal is awarded to the top first Class Honours graduate in both BSc and BSc in recognition of superior achievement in computer science.

G. Faculty of Engineering

Adelaide Award in the Aesthetics of Structure
Dr. John Adelaide established this award of $1,000 to be made to a graduating student in either the School of Architecture’s Master of Architecture program, or Civil Engineering. The award will be granted to the graduating student who demonstrates in a project both aesthetic principles in buildings and bridges, and applied restraints of architecture and structural engineering. The award will alternate between Architecture and Civil Engineering. Selection is by Scholarship and Awards Committee of the Faculty of Engineering on the recommendation of one professor of Structural Engineering, one professor of Architecture, one Consulting Structural Engineer, and one Consulting Architect. Deadline: Architecture - no application required. Engineering - March 31.

The Engineers (Nova Scotia) Award
Engineers Nova Scotia provides an award each year to a student graduating in engineering who demonstrates outstanding potential to serve their profession in an ethical manner as a Professional Engineer. The award will be awarded annually to students of the graduating class in consultation with their Engineering Department members. The award is an engraved certificate and $1,000. Selection will be made by the Student Affairs Committee of Engineers Canada and based on a written and oral presentation.

Atlantic Farm Mechanization Show Graduation Award
Presented annually to the student graduating in Biological Engineering who has exhibited the greatest aptitude in the machinery-related courses and who has demonstrated the greatest potential for a career in Biological Engineering. Value: $1,000.

Atlantic Land Improvement Contractors Association/Environmental Engineering Association Award
Presented annually to the student graduating in Environmental Engineering program who has exhibited the greatest aptitude in the environmental engineering courses and who has demonstrated the greatest potential for a career in environmental engineering. Value: $570.

The Louis I. Baker Awards in Technical Communication
Established by Dr. Max L. Baker in memory of his wife Louis are two prizes for the Technical Writing category valued at $300 and $200 each, and two prizes for the Oral Presentation category valued at $100 and $50 each. Dr. Baker was Professor Emeritus at Dalhousie and a former Head of Mechanical Engineering. Competition is open to all Dalhousie students registered in Engineering. Oral Presentation - students required to give a presentation in the third year. Technical Writing - students registered in the final year. The recipients shall be selected in February each year. The theme and rules governing the competition are available from the Office of the Associate Dean of Engineering. The details are published in the guidelines for the Baker Awards. Deadline: December - Technical Writing; January – Oral Presentation.

Camp 7 Iron Ring Award
Established by Camp 7 Charities, The Corporation of the Seven Wardens, this award is given to a graduating Engineering student who displays a uniquely high professional attitude towards their academic program that has produced quality academic results. Students are nominated for this award by their department, from those who have applied for undergraduate scholarships.

The Canadian Society for Chemical Engineering Medal
The Canadian Society for Chemical Engineering Medal is presented annually to the third year student in Chemical Engineering with the highest overall average during the third year of studies at Dalhousie.

The Canadian Society for Civil Engineering Certificate
In 1985, the Canadian Society for Civil Engineering established a Certificate of Achievement that is awarded annually to the student graduating in Civil Engineering with the highest aggregate in the last two years of study.

The Canadian Society of Mechanical Engineering Medal
The Canadian Society of Mechanical Engineering Medal is presented each year to the student graduating in Mechanical Engineering with the highest overall average.

Class of 1985 Award
The Class of 1985 Award is presented to the student graduating in Biological and Environmental Engineering program who has exhibited the most outstanding
Awards

that period and enjoyed a long and prestigious career as a professional engineer.
Engineer and Head of the Engineering Department, taught Graphics throughout
remembrance of Dr. H. R. Theakston who for several decades was University
highest standing in Engineering Graphics. It was established in 1964 in
This non-monetary award is presented each year to the student who achieves the
highest overall average in the program of studies at Dalhousie.
The Dr. H. R. Theakston Memorial Award
The family of the late Dr. H. R. Macdonald provided for a prize in his memory
to be awarded each year to a student completing the Bachelor of Engineering
program in Civil Engineering with a good academic average. The prize is awarded
by the Scholarships and Awards Committee on the recommendation of the Chair
of the Civil Engineering program. The award is $500.
The Ira P. MacNab Prize
The late Dr. Ira P. MacNab, an alumnus of the University, provided funds for an
annual award to be presented to the student graduating in Mechanical Engineering
with the highest overall average in a program of studies at Dalhousie. The award
is $75.
The Kenneth F. Marginson Award
This prize is awarded annually to the student who achieves the highest standing in
the first year of the Bachelor of Engineering program. Only students who are
enrolled in University for the first time are eligible to receive this award.
Presentations of this award is made to the student enrolling in the second year of the
Bachelor of Engineering program. This prize is funded from an endowment of
$2,500, established by an anonymous donor, in honour of Professor Kenneth F.
Marginson, a former Head of the Department.
The Mining Society of Nova Scotia Centennial Scholarship Medal
The Mining Society of Nova Scotia Centennial Scholarship Medal will be
awarded annually to a Mining or Materials Engineering student graduating at
Dalhousie who demonstrates the best all-around merit in the course of studies at Dalhousie.
The award is $500.
The Society of Chemical Industry Merit Award
The Society of Chemical Industry Merit Award is presented annually to the student
graduating in Chemical Engineering with the highest overall average during the senior year of a program of studies at Dalhousie.
The award is a gold key bearing the crest of the society, and a year’s subscription to Chemical Engineering.
The William Sloss Memorail Award
This prize consists of a medal which is presented annually to the student who shows outstanding ability in metallurgy, physical properties of metals or the use of metals in the arts of industry.
The Dr. H. R. Threakston Memorial Award
This non-monetary award is presented each year to the student who achieves the
highest standing in Engineering Graphics. It was established in 1964 in
remembrance of Dr. H. R. Threakston who for several decades was University
Engineer and Head of the Engineering Department, taught Graphics throughout
that period and enjoyed a long and prestigious career as a professional engineer.
The award consists of a certificate suitable for framing.
University Medal in Biological Engineering
This is awarded annually to the graduate who has attained the highest
academic standing in Biological Engineering.
University Medal in Chemical Engineering
This is awarded annually to the graduate who has attained the highest
academic standing in Chemical Engineering.
University Medal in Civil Engineering
This is awarded annually to the graduate who has attained the highest
academic standing in Civil Engineering.
University Medal in Electrical and Computer Engineering
This is awarded annually to the graduate who has attained the highest
academic standing in Electrical and Computer Engineering.
University Medal in Environmental Engineering
This is awarded annually to the graduate who has attained the highest
academic standing in Environmental Engineering.
University Medal in Food Science
This is awarded annually to the graduate who has attained the highest
academic standing in Food Science.
University Medal in Industrial Engineering
This is awarded annually to the graduate who has attained the highest
academic standing in Industrial Engineering.
University Medal in Mechanical Engineering
This is awarded annually to the graduate who has attained the highest
academic standing in Mechanical Engineering.
University Medal in Materials Engineering
This is awarded annually to the graduate who has attained the highest
academic standing in Materials Engineering.
University Medal in Mineral Resource Engineering
This is awarded annually to the graduate who has attained the highest
academic standing in Mineral Resource Engineering.
The Bob Walter Award
Given to the student who best combines fellowship, sportsmanship and
scholarship, the Bob Walter Award is the highest honour which the Engineering
Society can bestow upon its graduates. The award consists of an engraved gift and
a certificate suitable for framing. Instituted in the 1940/41 academic year, the
award honours the memory of an outstanding engineering student who was
president of the Dalhousie Engineering Society.
H. Faculty of Health Professions
1. University Medals
In the College of Pharmacy, the School of Health and Human Performance, School of Health Sciences and School of Nursing, a University medal is awarded annually at the spring convolution to a graduating student who demonstrates outstanding academic performance. The medal is only awarded if the following criteria have been met:
a. The candidate has successfully completed the equivalent of three full-time
years in his/her respective baccalaureate program (90 credit hours) at Dalhousie.
b. Has met the FHP cumulative GPA requirement or better on courses taken at
Dalhousie towards the degree.
c. Of those eligible, has the highest GPA.
All credits taken towards the degree at Dalhousie will be used in the calculations. Transfer credits taken prior to entry into the program are not counted towards either the 90 credit hours criterion, or towards the cumulative GPA requirement. Classes taken on Letter of Permission while registered in the program are
included in the 90 credit hours eligibility criterion and calculated as part of the
cumulative GPA requirement.

Students graduating in the full convolution are eligible for University Medal consideration in the following spring convolution.
As the School of Social Work does not offer a three-year (90 credit hour) BSW degree, it is not eligible for the University Medal.
2. School of Health and Human Performance

Canadian Society for Exercise Physiology

The Society provides an annual medal to the School to be awarded to an outstanding student in the Bachelor of Science (Kinesiology) program. The recipient will be the graduating student who has achieved the highest academic standing in their undergraduate class in the scientific portion of the curriculum.

The Dr. M. J. Ellis Award

This award was established to give recognition to a graduating student who demonstrates exceptional interest and ability in research in one of the four undergraduate degree programs.

Matthew Knox Award

This award was inaugurated in 2005 to recognize and honor the accomplishments of the individual whose name this award bears. Matthew Knox, a fourth-year Bachelor of Science (Kinesiology) student was one of three Dalhousie students in 2005 to win one of the three Rhodes Scholarships, awarded annually to Canadian Atlantic region for study at Oxford University. The Rhodes Scholarship, first established in 1902, is the oldest of the international study awards available to Canadian students. Of the 81 Dalhousie students to have won this award, since its inception, Matthew Knox was the first ever recipient from the Faculty of Health Professions.

The criteria for the Rhodes Scholarship, set down in the Will of the British philanthropist and colonial pioneer, are high academic achievement, integrity of character, a spirit of unselfishness, respect for others, potential for leadership and physical vigor. These basic characteristics are directed at fulfilling Cecil Rhodes’ hopes that Rhodes Scholars would make an effective and positive contribution throughout the world. These criteria will be used as guidelines in the determination of appropriate prospective student recipients in the School of Health and Human Performance for the Matthew Knox Award on a perpetual basis.

Leisure Research Congress Award

The Fifth Canadian Congress on Leisure Research set up an endowment to provide an annual award to a student who has graduated from the Bachelor of Science (Recreation) program. The recipient will have attained a cumulative GPA of 3.00 or higher and will have demonstrated an aptitude for research related to recreation and leisure.

PHE (Physical and Health Education) Canada Student Award

This award recognizes undergraduate student leadership in the field of health, physical education, recreation or dance.

The Dr. Hugh A. Noble Award

This award goes to a graduating student from one of our four undergraduate degree programs in the School of Health and Human Performance. The awarding is based on academic accomplishments, qualities of citizenship as shown by involvement outside the University, leadership qualities as demonstrated in activities inside the University, and an estimate of the candidate’s potential for contributing to the profession.

Dr. John C. Polley Sportsperson Award

This award is presented to a student who has contributed significantly to the development of a sport.

Dr. J. Singleton Leadership Award

This award is given annually in recognition of a Dalhousie University student’s involvement and commitment to Therapeutic Recreation professional organizations.

Vincent Chew Memorial Award

Vincent Chew graduated from Dalhousie University with a Bachelor of Commerce degree in 1997 and a Law degree in 2001. He was working as Communications and Marketing Manager with the International Council for Sport Science and Physical Education when he passed away in 2008 as a result of a road accident in Berlin, Germany. Prior to that, he was with the 15th Asian Games in Qatar, and the Commonwealth Games in Melbourne, Australia. An avid sports and music fan, he enjoyed his varied interests while traveling extensively. Considering his passion for sport, sport management, and business, the Vincent Chew Memorial Award has been established by his parents at Dalhousie that will recognize academic excellence in the joint Recreational Management degree program (Bachelor of Management/Bachelor of Science (Recreation)).

University Medal in Health and Human Performance

Please refer to H. Faculty of Health Professions, 1. University Medals on page 630 for details.

The Women’s Division of the Dalhousie-Alumni Association H&HP Medals

Three awards are available to students in the School of Health and Human Performance. For the students who achieve the highest standing in each of the Bachelor of Science (Recreation), the Bachelor of Science (Health Promotion) and the Bachelor of Science (Kinesiology) degree, the Women’s Division sponsors a medal.

3. School of Health and Human Performance

3a. For Graduating Students

BHSc Faculty Award

This award is given to the graduating student with the highest cumulative GPA following four consecutive years in the BHSc program.

DRANIMAGE Award

This award is given to a full-time student graduating in Nuclear Medicine Technology who has achieved the highest cumulative GPA for their discipline-specific courses.

Tom Mackenzie Memorial Award

This award, in memory of Tom Mackenzie, a 1977 graduate of the School of Radiological Technology, is awarded to a graduating Radiological Technology student and is based on high standards of clinical practice and the respect of patients’ rights and needs in individuals.

Dr. Robert H. Martin Prize

In memory of Dr. Robert H. Martin, this prize is awarded to a member of the graduating class in Nuclear Medicine Technology with the highest combined evaluation in clinical and academic performance over the four years of the degree.

Radiologist’s Awards

These awards are sponsored by the QEII Health Sciences Radiologist Group and are awarded to a graduating student in each of the Nuclear Medicine Technology, Diagnostic Medical Ultrasound and Radiological Technology programs with highest cumulative GPA.

Medigan Award for Clinical Achievement

This award is presented to a student who has successfully completed the third year of the BHSc degree in Respiratory Therapy.

University Medal in Health Sciences

Please refer to H. Faculty of Health Professions, 1. University Medals on page 630 for details.

3b. For Other Students

Dorothy Archibald Award

This award is sponsored by Dorothy Archibald, a lifetime member with CAMRT, who is dedicated in her retirement to advancement of the Medical Radiation Technology profession. Awarded to two full-time students (one in each of Nuclear Medicine Technology and Radiological Technology) who have successfully completed Clinical Practicum II.

Margaret Barrett-Banks Memorial Award

This cash award is sponsored by the Margaret Barrett-Banks memorial fund in memory of Dr. Margaret Barrett-Banks, a dedicated health professional and educator.

Ian Collins Memorial Pediatric Award

This award is given to the graduating student with the highest cumulative GPA.

BHSc Faculty Award

This award is given to the graduating student with the highest cumulative GPA.

University Medal in Health Sciences

Please refer to H. Faculty of Health Professions, 1. University Medals on page 630 for details.

Women’s Division of the Dalhousie-Alumni Association H&HP Awards

Three awards are available to students in the School of Health and Human Performance. For the students who achieve the highest standing in each of the Bachelor of Science (Recreation), the Bachelor of Science (Health Promotion) and the Bachelor of Science (Kinesiology) degree, the Women’s Division sponsors a medal.
Awards

Elsevier Canada Book Award
This award is sponsored by Elsevier Canada and is awarded to two full-time students: a Respiratory Therapy student who has completed first year and a Diagnostic Imaging student who has completed first year. These awards are based on highest cumulative GPA and completion of Clinical Practicum I.

Cynthia Johnson Evans Award
This award is sponsored by the Nova Scotia Society of Diagnostic Medical Sonographers, in memory of Cynthia Johnson Evans, former educator and sonographer. It is awarded to the student who has consistently demonstrated high standards of clinical practice upon completion of year three in Diagnostic Medical Sonography.

Heather Mattice Memorial Award
The family and friends of Heather Mattice, a former student of Nuclear Medicine Technology, established this award in her memory. It is given to a student entering year one in Nuclear Medicine Technology and is based on financial need, academic standing, community and campus involvement and recommendation of the Nuclear Medicine Technology faculty.

Nova Scotia College of Medical Laboratory Technologists (NSCLT) Awards
These three awards, sponsored by NSCLT, are given to students, one from each of the classes entering second, third, and fourth years of BScHSc in Diagnostic Cytopathology, and who have consistently demonstrated clinical and academic excellence and maintained a minimum GPA of 3.30. Students who have completed their first year must also demonstrate diagnostic excellence and clinical proficiency as well as excellence in professional practice and respect for the patient.

All Cameron Memorial Award
This award is sponsored by the Dalhousie Students Association of Health Sciences in memory of All Cameron. All was a respiratory therapy student at the Dalhousie School of Health Sciences from 2011 until she lost her battle with leukemia in 2013. This gift is awarded to a full-time respiratory therapy student who has entered clinical practice II (RPT 2500).

T Kendall Medical Marketing Limited Award
This award is given to a student completing the third year in Respiratory Therapy and is based on GPA, commitment to clinical excellence during the three years of study and evidence of extracurricular involvement.

4. School of Nursing (Convocation Awards)

Undergraduate Alumni Leadership Award
The recipient of this award is a student graduating from the Basic Degree Program or the Post RN Degree Program who has demonstrated significant leadership during her/his years of study.

Matthew Ayer Award for Community Nursing
The Matthew Ayer award was established in 2008 by the family and friends of Matthew Ayer in his memory. Matthew was a student in the RNBN program at the time of his death in October 2007. The recipient of this monetary award is a student in the Bachelor of Science (Nursing) Program at the School of Nursing, Dalhousie University, who has excelled in working with populations living on the margins of society due to social injustices.

Capital Health Award for Professional Practice in Nursing (Basic Stream and Advanced Standing Stream - Basic Degree Program)
Selected by her/his peers, this award recognizes a student graduating from the Basic Degree Program (May Convocation) and the Advanced Standing Stream (October Convocation) who has demonstrated the qualities of professional practice. The recipient of this monetary award epitomizes the Standards of Nursing Practice of accountability and responsibility, continuing competence and application of knowledge and advocacy, and the CNAA Code of Ethics for Registered Nurses.

Melda Dukovski Memorial Award
Melda Dukovski (née Cseceky) graduated from Victoria General Hospital School of Nursing in 1962 and worked in many areas of nursing across Canada. She and several of her family members experienced struggles with cancer and benefited from the nursing care they received. This award is provided by Mrs. Dukovski’s husband, in her memory, and was originally presented to a student graduating from the Victoria General Hospital School of Nursing. The recipient of this monetary award is a student graduating from the Basic Degree Program who has demonstrated interest and proficiency in Oncology Nursing.

Mary-Lou Ellerton Prize in Clinical Nursing
Professor Mary-Lou Ellerton was the Associate Director, Undergraduate Program Planning and Development at the School of Nursing, Dalhousie University. She was a graduate of the Universities of Ottawa and McGill and joined the faculty of the Dalhousie School of Nursing in 1979. She devoted her professional life to fostering excellence in clinical practice and made many significant contributions to both graduate and undergraduate programs in the School of Nursing as well as to the University and the broader nursing profession. Professor Ellerton was a woman of courage, integrity, wisdom and wit. She was posthumously awarded the IWK Health Centre’s highest honour, the Award of Distinction. The recipient of this award is a graduating student who has consistently received excellent evaluations in the clinical nursing components of the program.

Elsevier Canada Award
The recipient of this monetary award is a student graduating from the Basic Degree Program or the Post RN Degree Program who has shown progressive academic achievement.

Heather Fraser-Davy Book Award
Heather Fraser-Davy was a professor with the Dalhousie School of Nursing for more than 24 years. She received her PhD in Adult Education from Dalhousie. She taught Pedestriatic and Surgical nursing as well as Maternal-Child nursing. Heather was involved in establishing a link with the Quanso Margaret College, Department of Nursing, Edinburgh, Scotland. She also worked with the Tanzania project which linked the School of Nursing, Dalhousie and the School of Nursing, University of Daru Salum. She is Past President and a Life Member of the Atlantic Region of Canadian Association of University Schools of Nursing. Heather also held an Honorary Research Associate position in the School of Education, Dalhousie University. The recipient of this monetary award is a graduating student who has demonstrated interest in international nursing and nurse midwifery.

Highest Academic Achievement Certificate (Basic Degree Program and Post RN Degree Program)
The recipient of this award is a student graduating from the Basic Degree Program and Post RN Degree Program with the highest cumulative GPA.

Highest Academic Achievement Prize (Undergraduate Degree Program)
The recipient of this monetary award is a student graduating from the Basic Degree Program or the Post RN Degree Program with the highest cumulative GPA.

IWK Medical, Dental and Scientific Staff award for Excellence in Children’s Nursing
The recipient of this monetary award is a student graduating from the Basic Degree Program who has demonstrated excellence in the area of Children’s Nursing.

IWK Medical, Dental and Scientific Staff award for Excellence in Women’s and Newborn Nursing
The recipient of this monetary award is a student graduating from the Basic Degree Program who has demonstrated excellence in the area of Women’s and Newborn Nursing.

IWK Health Centre Prize for Excellence in the Care of Children and Families
The recipient of this monetary award is a student who has demonstrated critical thinking, advocacy and autonomy in nursing children and their families in hospitals, homes and communities.

Elizabeth MacKinnon Lambie Award for Nutrition
Elizabeth Lambie was a professor at Dalhousie School of Nursing for more than 23 years. She taught classes on human nutrition, the role of nutrition in health promotion and community development, and the economic, social and physical determinants of eating practices. She is a Life Member of the Atlantic Region of the Canadian Association of University Schools of Nursing; a Charter member, Past President, Nova Scotia Dietitians Association; Past President, Fellow, Canadian Dietitians Association; Past President, Public Health Association of Nova Scotia, and Board Member, International Council on Women’s Health Issues. The recipient of this monetary award is a graduating student who has demonstrated the ability to apply community nutrition knowledge to the nursing profession.
An endowment fund was established by Ortho Pharmaceutical (Canada) Ltd. in 1990 in memory of Mr. F. R. Clayton. The recipient of this prize of a book is presented in memory of Mr. F. R. Clayton (Class of 1912) in a deserving student completing third year courses of the pharmacy program.

The William Killorn Award

This award is presented annually to a fourth year pharmacy student who has demonstrated a genuine and unfailing commitment to the practice of pharmacy.

The Margaret J. Butcher Award

This award is presented to a student who has had a positive influence on the activities of the College of Pharmacy; who is regarded by others as hardworking and unpretentious; and who has a genuine and unfailing commitment to the practice of pharmacy.

The William Killorn Award

This award is presented to a student who has had a positive influence on the activities of the College of Pharmacy; who is regarded by others as hardworking and unpretentious; and who has a genuine and unfailing commitment to the practice of pharmacy. The student must be a graduate of a high school in Nova Scotia and should not be the recipient of other concurrent awards. The Selection Committee may also consider the financial need. This award is sponsored by the Pharmacy Association of Nova Scotia.

The J. G. Duff Pharmacy Award

This award is presented to a student from New Brunswick on the basis of academic achievement, financial need and participation in student activities at the College of Pharmacy. The award is made available through a bequest of the late Mr. Charles D. Dickison.

The Sister Frances de la Vella Award

This award, a reference book or a subscription to a professional journal, is offered annually by the Nova Scotia Branch of the Canadian Society of Hospital Pharmacists and is presented to a graduating student entering a hospital pharmacy residency program, who is a member of CSHP, and excels in the PBL curriculum.

The Doreen Darby Award for Excellence

This award is presented annually to a student who has demonstrated a good academic standing and whose contributions to undergraduate life at the university level.

The Robert C. Dickison Memorial Award

This award is presented to a student from New Brunswick on the basis of academic achievement, financial need and participation in student activities at the College of Pharmacy. The award is made available through a bequest of the late Mr. Charles D. Dickison.

The Margaret J. Butcher Award

This award is presented to a student who has had a positive influence on the activities of the College of Pharmacy; who is regarded by others as hardworking and unpretentious; and who has a genuine and unfailing commitment to the practice of pharmacy. The student must be a graduate of a high school in Nova Scotia and should not be the recipient of other concurrent awards. The Selection Committee may also consider the financial need. This award is sponsored by the Pharmacy Association of Nova Scotia.

The Margaret J. Butcher Award

This award is presented to a student who has had a positive influence on the activities of the College of Pharmacy; who is regarded by others as hardworking and unpretentious; and who has a genuine and unfailing commitment to the practice of pharmacy.
Awards

Scott Knowles Memorial Pharmacy Award
This award is established by family, friends, and colleagues in memory of Scott Knowles, a graduate of the Class of 2007. The award is presented to a student from New Brunswick who exhibits a high degree of professionalism and possesses leadership qualities. Preference will be given to a student returning to New Brunswick to practice in an independent, retail, community-based pharmacy.

Dr. Jessie L. MacKnight Miss Mona W. Fleming Award in Hospital Pharmacy
This award is presented annually to a student from New Brunswick and to a student from Nova Scotia who has completed outstanding work in the hospital portion of the practical experience program and in the fourth year multi-skill laboratory class. It is donated by the recipients who demonstrate an interest in hospital pharmacy practice.

The Helen Corson Marshall Award in Pharmacy
This award was established in memory of Helene Corson Marshall, a student of the Maritime College of Pharmacy, by her family. This award is to be given annually to a student (or students) who has successfully completed one or more years of the class leading to a degree in pharmacy and who is enrolled in pharmacy at the University for the ensuing year. Candidates must have obtained a satisfactory academic standing and must show promise of making future contributions to the profession of pharmacy. Financial need may be considered.

The Donald Moore Memorial Award in Pharmacy
This award was established with donations made by family, friends, and colleagues in memory of the late Donald Moore, a well-known leader in hospital pharmacy and an interest in practicing community pharmacy. The recipient must demonstrate satisfactory academic standing and community pharmacy at the University for the ensuing year. Candidates must have attained a second highest aggregate mark during his/her four years at the College of Pharmacy.

McNeill, Rhodes, Karayannan Award
This award will be given to a pharmacy student at the completion of her/his third or fourth year of the program. The recipient must have attained satisfactory academic standing and must be an active member of the class participating in college activities such as For the Health Of It, the class quiz, and be a member of an intramural team.

Merck Frost Evidence-Based Clinical Practice Award
This award is donated to a graduating student who has demonstrated outstanding interest, aptitude and leadership in the development and application of evidence-based and evidence-based care in practice and research.

Merck Sharp and Dohme Pharmacy Award
This award, the books, The Merck Index and The Merck Manual, are presented to the student entering third year who excels in pharmaceutical sciences (medicinal chemistry, pharmacokinetics).

Roger Montigny Memorial Award
This award is presented to a third year student from Prince Edward Island who has demonstrated a passion for pharmacy and an interest in practicing community pharmacy. The recipient must demonstrate satisfactory academic standing and financial need.

Donald Moore Memorial Award in Pharmacy
This award was established with donations made by family, friends, and colleagues in memory of the late Donald Moore, a well-known leader in hospital and community pharmacy in New Brunswick. This award is presented to students entering third year, who have demonstrated well-rounded skills by making a significant and continuing contribution to the student body at the College of Pharmacy and/or Dalhousie University.

Natural Medicines Comprehensive Database Recognition Award
The recipient of this award will be a graduating student who demonstrates an interest in natural products. The recipient will receive a one-year subscription to Natural Medicines Comprehensive Database website, a series of booklets entitled Natural Medicines in the Clinical Management of Disease, and an Award Certificate.

New Brunswick Pharmaceutical Society Centennial Medal
In conjunction with its 100th anniversary of incorporation, the Society has established this commemorative medal to be presented annually to the New Brunswick student who has attained the highest aggregate mark during his/her four years at the College of Pharmacy.

The Nova Scotia Association of Certified Dispensers Price
This prize, of a book, will be awarded annually to the top student in the first year multi-skills laboratory. The price was established in 1984 with the gift of funds to provide the initial award and to set up an endowment to provide subsequent awards.

The Nova Scotia College of Pharmacists Centennial Award
In conjunction with its 100th anniversary of incorporation, the Society has established an award. Candidates will have a satisfactory academic standing and show aptitude for the profession. The financial need of the student may be considered in selecting recipients for the award.

Nova Scotia College of Pharmacists Memorial Award
This Society has established an award in memory of past members and friends of the Society. The award is available to a qualifying student who possesses good academic standing and aptitude for the profession. The financial need of the student may be considered in selecting the recipient for the award of $1,000.

Nova Scotia Pharmacy Award
This award is given to the student who excels in the second year Pharmacology class.

CPPI Centennial Leadership Award (External)
This award, presented jointly by the Canadian Pharmacists Association (CPA), and enables a third year student to join pharmacists and fellow students at the Annual General Meeting of the Canadian Pharmacists Association. The award program exposes student winners to several facets of the profession including the pharmaceutical industry, innovative pharmacy practice sites, hospitals and government agencies wherever possible. Selection is based on academic achievement and outstanding contributions to undergraduate activities.

Eric & Ryan Post-Pharmacy Leadership Award
This award is presented to a student who is completing their third year and has demonstrated financial need and has also made significant contributions to pharmacy life at the College.

The B. Trevor Puglsey Memorial Pharmacy Award
This award was established by a bequest from the Estate of B. Trevor Puglsey for an undergraduate student who has completed one or more years of the pharmacy class. The criteria for the selection of the recipient is based on academic standing, aptitude for pharmacy and qualities of character. Financial need may also be considered.

The Mrs. Vera B. Puglsey Award
This award was established by a bequest from the Mrs. Vera B. Puglsey estate. This award will be presented annually to a student who successfully completed one or more years of the class leading to a degree in pharmacy and who is enrolled in pharmacy at the University for the ensuing year. Candidates must have obtained a satisfactory academic standing and must show promise of making future contributions to the profession of pharmacy.

The Nova Scotia College of Pharmacists Centennial Award
This Society has established an award. Candidates will have a satisfactory academic standing and show aptitude for the profession. The financial need of the student may be considered in selecting recipients for the award.

The Mrs. Vera B. Puglsey Award
This award was established by a bequest from the Mrs. Vera B. Puglsey estate. This award will be presented annually to a student who successfully completed one or more years of the class leading to a degree in pharmacy and who is enrolled in pharmacy at the University for the ensuing year. Candidates must have obtained a satisfactory academic standing and must show promise of making future contributions to the profession of pharmacy.

John J. Ryan Pharmacy Administration Awards
These two awards are presented annually to the student who excels in PHAR 4060 (Advanced Patient Health Management) and PHAR 1060 (Pharmacy Law and Health Care Ethics). Financial need will also be considered. This award was made possible through income of the John J. Ryan Fund.

The Mrs. Vera B. Puglsey Award
This award was established by a bequest from the Mrs. Vera B. Puglsey estate. This award will be presented annually to a student who successfully completed one or more years of the class leading to a degree in pharmacy and who is enrolled in pharmacy at the University for the ensuing year. Candidates must have obtained a satisfactory academic standing and must show promise of making future contributions to the profession of pharmacy.

Sandoz Pharmacy Administration Award
These two awards are presented annually to the student who excels in PHAR 4060 (Advanced Patient Health Management) and PHAR 1060 (Pharmacy Law and Health Care Ethics). Financial need will also be considered. This award was made possible through income of the John J. Ryan Fund.

The Nova Scotia Pharmacists Centennial Award
This Society has established an award. Candidates will have a satisfactory academic standing and show aptitude for the profession. The financial need of the student may be considered in selecting recipients for the award.

The Mrs. Vera B. Puglsey Award
This award was established by a bequest from the Mrs. Vera B. Puglsey estate. This award will be presented annually to a student who successfully completed one or more years of the class leading to a degree in pharmacy and who is enrolled in pharmacy at the University for the ensuing year. Candidates must have obtained a satisfactory academic standing and must show promise of making future contributions to the profession of pharmacy.

Sandoz Pharmacy Administration Award
These two awards are presented annually to the student who excels in PHAR 4060 (Advanced Patient Health Management) and PHAR 1060 (Pharmacy Law and Health Care Ethics). Financial need will also be considered. This award was made possible through income of the John J. Ryan Fund.

Dr. Samar R. Singh Prize in Anatomy
An endowed fund has been established for the purpose of providing a prize to the highest standing student in first year anatomy among Nursing and Pharmacy enrollees. The prize, consisting of a book or books to the approximate value of
$100, is a memorial to Dr. Singh, a long-time member of the Department of Anatomy. The awardee will be selected by the Head of the Department.

The Whelan Family Award in Pharmacy

This award is presented to a student from New Brunswick who shows an aptitude for patient-centered care as demonstrated by excelling in Pharmacy Skills Lab.

University Medal in Pharmacy

Please refer to G. Faculty of Health Professions, 1. University Medals on page 620 for details.

6. School of Social Work

Dalhousie University Women Alumnae Medal

This medal is presented annually to the BSW graduating student with the highest cumulative GPA in the Baccalaureate program in the School of Social Work.

Russell Leger Memorial Humanitarian Award

This award was established to honour the memory of Russell Leger, who received a Bachelor's degree in Social Work from Dalhousie University in 1977. His work at home and abroad exemplified his commitment to community development, peace and social justice. The award is presented to a graduating BSW or MSW student, who is nominated on the basis of achievement with a continued involvement in critical social issues.

The School of Social Work BSW Alumnae Award

This alumni award has been established to support financial awards to be given to students in the Bachelor of Social Work degree program who demonstrate the highest values of humanity, community, and service in the study of Social Work as reflected in contributions to the learning environment of the School. A student must be nominated for this award.

J. Bernard MacNell Memorial Award

For a BSW student in their second year of studies who achieves high academic standing and who best meets the criteria of financial need and shows promise of making future contributions to the profession of social work in the areas of community or corrections.

I. Faculty of Management

Andrew Peacock Memorial Award

An annual award named in honour of Dr. Andrew Peacock, Professor in the Rowe School of Business. Students who are in good standing and are enrolled in the Bachelor of Management or Bachelor of Commerce degree in the second or third year of study are eligible. Students must have demonstrated interest and understanding of the issues related to persons with disabilities, have demonstrated voluntary and experience or interest in working in the not-for-profit sector. Application required in the fall term. Apply to the department.

1. Commerce

The Wilfred Berman Memorial Prize

The Wilfred Berman Memorial Prize is payable from the income of a fund provided by former students of the late Professor Wilfred Berman to the student obtaining the highest mark in the course in first year Accounting.

Commerce Alumni Association Awards

The Commerce Alumni Association sponsors seven annual two-monetary awards to recognize academic achievement. There is one award for each of Accounting, Finance, Entrepreneurship, Marketing Management, Marketing Logistics, International Business and Managing People and Organizations.

The Stewart Luckie Gibson Memorial Prize

The Rowe School of Business offers a prize to the graduating student in the general Bachelor of Commerce program who has achieved the highest overall standing.

The D. C. Mackay Award in Money Management

An endowment has been established by Dr. Douglas C. Mackay, a successful investment banker, valued alumnus and active member of the Rowe School of Business Advisory Committee. A major prize is available to a student whose program concentration is Finance, whose career preparation is Money Management, who achieves excellent performance in COMM 3206 and who achieves satisfactory performance in research in the Money Management area.

Christopher Mckee Award of Merit

This award is established in memory of Christopher Mckee, a Commerce graduate of 1981, through the generosity of his family. The recipient will have at least a "B" average, and will have made significant contribution to the university as an organizer, or participant in university or community activities. Application to department is required.

John R. E. Parker Prize in Accounting

Established by Professor John Parker and Joan Parker, who are passionate about the accounting profession, this prize is awarded to a Commerce student for excellence in attaining the best overall mark in Intermediate Financial Accounting I and Cost Management.

University Medal in Commerce

The Rowe School of Business offers a medal to the top graduating student in the Bachelor of Commerce program. The awardee will be the one who has fulfilled the high scholastic standard for this award.

2. Management

University Medal in Management

The Faculty of Management offers a medal to the top graduating student in the Bachelor of Management program. The awardee will be the one who has fulfilled the high scholastic standard for this award.

Peter Dolph Memorial Prize in Biochemistry

In memory of Professor Peter Dolph, this prize is awarded annually to the fourth year science student who is judged to have the best overall performance in the Honours Research Project (Biochemistry 4804/4805).

Kilner MacMillan Memorial Book Prize

This prize is awarded annually to the student who attains the highest aggregate mark for the three half-courses, BIOC 3700, 3300 and 3400.

Douglas Russell Memorial Book Prize

In memory of Dr. Douglas Russell, the Department of Biochemistry and Molecular Biology has established a prize to be awarded to the student with the highest aggregate mark in Biochemistry 2300, a course which owes its existence in large part to his efforts.

The Society of Chemical Industry, Canadian Section, Merit Award

This award is presented annually to a graduate student in Biochemistry who is judged to have the highest standing in the final year. A minimum average of 75% is required.

University Medal in Biochemistry and Molecular Biology

The Department of Biochemistry and Molecular Biology offers a medal to the top First Class Honours graduate in the Biochemistry program. The awardee will be the one who has attained the high scholastic standard of the Department.
2. Biology

The Adams Prize

On the occasion of the retirement of Dr. John G. Alderson, friends, colleagues and students established an endowment to provide an annual prize to be awarded for the best achievement in Biology for the fourth year of the course to a student who has shown exceptional ability academically. The recipient will be determined during the Cameron conference poster and oral presentations. In the event that there is more than one student whose research project meets these criterion, overall GPA will be the deciding factor.

The Cameron conference poster and oral presentations. In the event that there is more than one student whose research project meets these criterion, overall GPA will be the deciding factor.

Cecelia Rajaratnam Memorial Prize in Plant Cell Biology

This prize will be awarded annually to a top fourth year honour student whose research project best achieves the aims of the undergraduate program in Plant Cell Biology. The recipient will be determined during the Cameron conference poster and oral presentations. In the event that there is more than one student whose research project meets these criterion, overall GPA will be the deciding factor.

University Medal in Biology

The Department of Biology offers a medal to the top First Class Honours graduate in the Biology program in recognition of superior achievement.

University Medal in Marine Biology

The Department established this medal in 1985-86 to be awarded, where appropriate, to the student who stands highest among the First Class Honours graduates in the Marine Biology program.

3. Chemistry

The John Hamilton Barrett Prize

This is the gift of his widow, Mrs. Marjorie Barrett. It is offered annually at the end of the fourth year of the course to a student who has shown exceptional ability in chemistry or other science. Application not required.

The Canadian Society for Chemistry Silver Medal

This CSC Silver Medal is provided to each university with a chemistry department and is awarded to the student with the highest standing in chemistry and allied subjects in the penultimate year. The successful student receives a medal and an inscribed certificate. Application not required.

The John Hamilton Barrett Prize

This endowment was established to provide an annual prize to the student who has submitted and defended the best Honours Research Project in Chemistry. Dr. Barrett received his BSc (Honours) from Dalhousie in 1935 and held many senior positions with the Canadian Armed Forces and the Department of National Defence. Application not required.

Chemistry Achievement award

This award is available to undergraduate students in the chemistry program and is awarded on the basis of academic standing, demonstrated proficiency in chemistry, and other criteria such as employment, community service and extra-curricular activities. Application not required.

Walter J. Chute Prize in Chemistry

This endowment was established to provide an annual prize to a chemistry student, with an outstanding record in organic chemistry, entering his or her final year in the Honours Chemistry program. Application not required.

The CRC Freshman Achievement Award

Awarded on the basis of outstanding academic achievement in freshman chemistry, the CRC Press Freshman Achievements Award is given to more than 2,000 schools. Winning students receive a complimentary copy of the CRC Handbook of Chemistry and Physics and a commemorative award to be mounted on the inside front cover. Application not required.

The Hugh Graeme Fraser Memorial Prize in Advanced Chemistry

This award was founded by members of the Class of 1931 and is awarded annually to a student at the end of his/her third year, who has, in the opinion of the Department, shown such aptitude for the subject that he or she is entitled to be the one who is deemed to be the best, assessed on academic standing and work term performance.

The Dr. J. G. Ogden Memorial Prize in Marine Biology

This prize will be awarded annually to a top fourth year honour student whose research project best achieves the aims of the undergraduate program in Marine Biology. The recipient will be determined during the Cameron conference poster and oral presentations. In the event that there is more than one student whose research project meets these criterion, overall GPA will be the deciding factor.

The Undergraduate Student Society Spirit of Chemistry Prize

The Spirit of Chemistry Prize

This endowment was established to provide an annual prize to the student who has demonstrated excellence in organic chemistry, and who help promote the subject through their enthusiastic participation in their studies and chemistry related activities. To be eligible to receive this prize, students must be majoring in chemistry, have a minimum of 2.50 GPA, and must be nominated by a professor or instructor. Application not required.

Hypercube Scholar Award

Awarded to a graduating student going on to graduate school, where molecular modeling might be part of his/her future. Winning students receive a complimentary copy of HyperChem software plus a small commemorative plaque. Application not required.

The CSC Silver Medal is provided to each university with a chemistry department and is awarded to the student with the highest standing in chemistry and allied subjects in the penultimate year. The successful student receives a medal and an inscribed certificate. Application not required.

The John Hamilton Barrett Prize

This endowment was established to provide an annual prize to the student who has submitted and defended the best Honours Research Project in Chemistry. Dr. Barrett received his BSc (Honours) from Dalhousie in 1935 and held many senior positions with the Canadian Armed Forces and the Department of National Defence. Application not required.

Chemistry Achievement award

This award is available to undergraduate students in the chemistry program and is awarded on the basis of academic standing, demonstrated proficiency in chemistry, and other criteria such as employment, community service and extra-curricular activities. Application not required.

Walter J. Chute Prize in Chemistry

This endowment was established to provide an annual prize to a chemistry student, with an outstanding record in organic chemistry, entering his or her final year in the Honours Chemistry program. Application not required.

The CRC Freshman Achievement Award

Awarded on the basis of outstanding academic achievement in freshman chemistry, the CRC Press Freshman Achievements Award is given to more than 2,000 schools. Winning students receive a complimentary copy of the CRC Handbook of Chemistry and Physics and a commemorative award to be mounted on the inside front cover. Application not required.

The Hugh Graeme Fraser Memorial Prize in Advanced Chemistry

This award was founded by members of the Class of 1931 and is awarded annually to a student at the end of his/her third year, who has, in the opinion of the Department, shown such aptitude for the subject that he or she is entitled to be the one who is deemed to be the best, assessed on academic standing and work term performance.

The Dr. J. G. Ogden Memorial Prize in Marine Biology

This prize will be awarded annually to a top fourth year honour student whose research project best achieves the aims of the undergraduate program in Marine Biology. The recipient will be determined during the Cameron conference poster and oral presentations. In the event that there is more than one student whose research project meets these criterion, overall GPA will be the deciding factor.

The Undergraduate Student Society Spirit of Chemistry Prize

The Spirit of Chemistry Prize

This endowment was established to provide an annual prize to the student who has demonstrated excellence in organic chemistry, and who help promote the subject through their enthusiastic participation in their studies and chemistry related activities. To be eligible to receive this prize, students must be majoring in chemistry, have a minimum of 2.50 GPA, and must be nominated by a professor or instructor. Application not required.

Hypercube Scholar Award

Awarded to a graduating student going on to graduate school, where molecular modeling might be part of his/her future. Winning students receive a complimentary copy of HyperChem software plus a small commemorative plaque. Application not required.

Oswald Knop Prize in Chemistry

This prize is awarded to the top student (or students, in the event of a tie) for the best achievement in both course and laboratory work in the 2000 level inorganic chemistry course.

The Society of Chemical Industry, Canadian Section, Merit Award

This award (an engraved gold key and subscription to Chemistry and Industry) may be made to the Honours graduate in chemistry with the highest standing in the final year. A minimum average of 75% is required. Application not required.

The Spirit of Chemistry Prize

The undergraduate Student Society Spirit of Chemistry Prize is meant to benefit students who are majoring in chemistry, and who help promote the subject through their enthusiastic participation in their studies and chemistry related activities. To be eligible to receive this prize, students must be majoring in chemistry, have a minimum of 2.50 GPA, and must be nominated by a professor or instructor. Application not required.

Undergraduate award in Analytical Chemistry

The Division of Analytical Chemistry of the American Chemical Society offers a number of gift subscriptions to Analytical Chemistry. These awards are intended to recognize students who have shown an aptitude for a career in analytical chemistry. Application not required.
University Medal in Chemistry
The Department of Chemistry offers a medal to the top First Class Honours graduate in recognition of superior achievement in chemistry.

4. Earth Sciences
The David Bartle Memorial Award
The family, friends, and classmates of David Bartle established in 1984 an endowed fund to provide an annual prize in his memory. The Dalhousie Geology Club in consultation with the Departmental Chairman will select a student in second year Earth Sciences who has demonstrated both a good academic record and leadership qualities.

Canadian Society of Petroleum Geologists Award
The Society sponsors an annual award consisting of a certificate and a one year student membership to an undergraduate student who has demonstrated outstanding competence in petroleum geology or closely related fields.

Canadian Society of Petroleum Geologists Student Industry Field Trip
The society sponsors a field trip to a third year Earth Sciences student who has an interest in petroleum geology, sedimentology and stratigraphy. The award consists of travel expenses and field expenses for a trip to the Sambro Island Basin and Rocky Mountains of Western Canada.

G.V. Douglas Memorial Prize in Earth Sciences
In 1958-59, friends and former students of the late Professor G.V. Douglas, established a memorial fund from which the interest would provide a prize to be awarded to an outstanding student in first year Earth Sciences.

Geological Association of Canada Student Prize
This award is on academic standing. This prize is awarded annually to a student entering fourth year. The prize will consist of a one year free membership in the GAC and a GAC "Special Paper" volume to be chosen by the recipient.

Michael J. Keon Memorial Award
This award was established to encourage greater participation of women in science. It is to be awarded to a female student entering the second year earth science program who shows an interest in and commitment to the pursuit of a career in sciences and whose performance is of honours calibre.

MacEachern-Ponsford Memorial Award
Family, friends and classmates of Ian Joseph MacEachern and Mark Anthony Ponsford have established a memorial fund. The purpose of the endowment is to provide an annual award to a student who has completed the second year of a program majoring in Earth Sciences, whose academic performance is of an honours calibre and who has been an active participant in student activities. The award is to be made on the recommendation of the Chairman of the Earth Sciences Department after consultation with the Dalhousie Geology Club and departmental staff.

Mineralogical Association of Canada Student Prize
This award is open to an undergraduate student who has completed at least second year and has demonstrated excellence in one of mineralogy, crystallography, geochemistry, petrology and mineral deposits. The recipient will receive the choice of one of the MAC special publications.

The Mining Society Centennial Scholarship Medal
The Mining Society of Nova Scotia sponsors annual medals to students who have distinguished themselves during university studies in the mineral, metallurgical or petroleum fields. The Department awards the medal allocated to Dalhousie to the best all round graduating student.

University Medal in Earth Sciences
The Department of Earth Sciences offers to the top First Class Honours graduate a medal in recognition of superior achievement.

5. Economics
The Anonymous Economics Prize
This prize, consisting of a book(s) and a sum of money, is open to the Dalhousie undergraduate who is not in the final year of study and who has shown through an essay during the second year of study on economics, the best promise of successfully applying economic theory to the solution of human problems as determined by the selection committee.

Econometrics Prize
The purpose of this prize is to provide an annual prize for an undergraduate Economics major. The Econometrics Prize will be awarded to the undergraduate Economics major with the highest combined average in the Econometrics I (ECON 3310) and Econometrics II (ECON 3339) sequence of courses.

Economic Theory Prize
The purpose of this prize is to provide an annual prize for an undergraduate Economics major. The Economic Theory Prize will be awarded to the undergraduate Economics major with the highest combined average in the Intermediate Microeconomics (ECON 2200 or 2220) and Intermediate Macroeconomics (ECON 2301) sequence of courses.

Economics Honours Thesis Prize
The purpose of this prize is to provide an annual prize for an undergraduate Economics major. The Economics Honours Thesis Prize will be awarded to the undergraduate Economics honours student with the best honours thesis, as determined by the Selection Committee.

Economics International Student Essay Prize
The purpose of this prize is to provide an annual prize for an undergraduate Economics major. The prize will be awarded to the undergraduate Economics 2+2 international student with the best essay written in their third year, as determined by the Selection Committee.

Principles of Economics Prize
The purpose of this prize is to provide an annual prize for an undergraduate Economics major. The prize will be awarded to the undergraduate Economics major with the highest combined average in the Principles of Microeconomics (ECON 1101) and Principles of Microeconomics (ECON 1102) sequence of courses.

University Medal in Economics
The Department of Economics offers a medal to the top First Class Honours graduate in recognition of superior achievement in Economics.

6. Environmental Science
Environmental Science Award
This award is given to an Environmental Science student in her his third year of study who has shown academic promise in her his environmental course work.

Environmental Science Honours Society Award
The Honours Society Award is awarded annually to students graduating with a B.Sc. Honours Major in Environmental Science or B.Sc. Combined Honours or a Double Major in Environmental Science who have achieved a cumulative GPA of 3.5 or more.

Environmental Science Thesis Prize
This prize is awarded annually to the student who is judged to have submitted and defended the best Honours Thesis.

Owen Hartman Prize
The Owen Hartman Prize is granted annually to an Environmental Science student who is deemed to have contributed significantly to Environmental Science school life.

University Medal in Environmental Science
Environmental Science offers to the top First Class Honours graduate a medal in recognition of superior achievement in environmental science.

7. Mathematics and Statistics
Barnwell Prize
The Barnwell Prize will be awarded annually to the student registered in the Co-op Mathematics Program who has the best cumulative academic record, subject to the restrictions that the prize can be awarded only once to a given individual and that the winner must have performed acceptably in all work term assignments.

The Dr. Emil and Mrs. Stella Blum Prize in Mathematics
A fund was established by Dr. Emil Blum in memory of his parents Emil and Stella Blum. The prize will be awarded to an advanced major or honours Mathematics student who achieves the highest grade in second year calculus.

The Katherine M. Buttershow Prize
This prize will be awarded annually to the student standing highest in the advanced mathematics courses.
Undergraduate book  Page 638  Wednesday, March 12, 2014  12:03 PM

638 Awards

Ken Dunn Memorial Prize

The fund which was established in memory of Ken Dunn will provide an annual prize to a student who has completed the third year of an Honours program in Mathematics or Statistics, or a combined Honours program in Mathematics and Statistics.

Barry Ward Fawcett Memorial Prize

Established by friends and colleagues of the late Dr. Barry Ward Fawcett who was an associate professor of Computing Science from 1982 until his untimely death at age 47 in 1991. The Department of Computing Science offers this prize to an undergraduate student who has completed between 30 and 60 credit hours, registered in a mathematics or statistics program, and has achieved the highest grade in MATH/CSCI 2113 (Discrete Structures II).

The Ellen McCaughin McFarlane Prize

A Fund has been established in memory of Ellen McCaughin McFarlane, Class of 1927. Initially, the Fund is to provide an annual prize to an Honours mathematics student who at the end of his/her first year* in the honours program has achieved the highest standing. (*Normally, this would be upon the completion of the second year at Dalhousie.)

The Walter Prize

This prize will be awarded annually to the student with the highest standing in MATH 1010.

The Sir William Young Gold Medal

Founded by the bequest of the late Sir William Young, this medal will be awarded on graduation to the student who stands first among those taking First Class Honours in Mathematics, this is the University Medal in Mathematics.

University Medal in Statistics

The Department established this medal as an award to the student who stands highest among the First Class Honours graduates in the Statistics program.

8. Microbiology and Immunology

Ron Carr Award

The Department of Microbiology and Immunology offers a book award to a student who displays academic achievement, commitment to the betterment of colleagues, makes substantial contributions to the broader community and is involved in extra-curricular activities in the arts or environment.

Honsor Student Prize

The Department of Microbiology and Immunology offers $100 award for outstanding academic achievement during the Honours Program.

University Medal in Microbiology and Immunology

The Department of Microbiology and Immunology offers to the top First Class Honours graduate a medal in recognition of superior achievement in the program.

9. Physics and Atmospheric Science

The Dr. William J. Archibald Prize in Physics

An annual prize will be awarded to a student who is considered by the Physics Department to be the most promising among those entering a second year Honours Physics program with first class standing.

The Dr. E. W. Gullip Memorial Prize

This is to be awarded to the undergraduate student who best exemplifies the qualities of Dr. E. W. Gullip in showing initiative, experimental skill, leadership and enthusiasm for Physics, thereby making an outstanding contribution to physics in this University. This prize will not necessarily be awarded every year.

The James Gordon MacGregor Memorial Prizes

Relatives of the late Dr. J. G. MacGregor contributed to the James Gordon MacGregor Memorial Fund which now provides awards to undergraduates in the study of physics. The undergraduates are known as scholars.

The Dr. A. Stanley MacKenzie Prizes in Physics

These prizes will be awarded by the Department of Physics and Atmospheric Science to the most promising students in the first two years of the Physics program. The fund was established under the will of the late Miss Mary Alice Smith.

The Burgess McKintick Prizes in Physics

The funds for these prizes come from the estate of F. J. A. McKintick who graduated in 1894 with Honours in Mathematics and Mathematical Physics. He was the first Dalhousie graduate to receive the 1851 Exhibition Scholarship. The prices are in memory of his brother, Burgess McKintick, who graduated in 1877. A prize will be awarded to undergraduate students achieving the highest standing in each of Physics 1280/1290, 1300 and the core second year Physics courses. No student may receive more than one such prize in any one year. A prize will be awarded to the female Honours students who achieves first class standing in any of fourth year, third year with first class standing in the fourth year or fourth year, third year with first class standing. Consideration will occur in the fall.

Burgess McKintick Summer Research Studentships in Physics

The Department offers up to two 3-4 month studentships for first year students intending to go into an Honours Physics program at Dalhousie.

Darrell Montgomery Memorial Prize

An endowment has been set up to provide an annual prize to a third year student in the Phys-ecs 1000/3010 experimental laboratory who is deemed to have shown a love of experimentation, the qualities of leadership and participation in student activities in physics related areas.

The Diploma in Meteorology Prize

This prize is awarded to the student with the highest GPA in the program.

Dr. Masayoshi Sembu Memorial Prizes

One prize will be awarded to an undergraduate student attending courses typically taught by Masayoshi Sembu, who, in the opinion of the faculty, possess outstanding skills, interest, promise, and determination in theoretical physics. The other prize will be awarded to a student in Physics (major or honours) in their third or fourth academic year who, compared to the previous academic year, exhibits the greatest improvement in his/her studies.

The University Medal in Physics

The Department of Physics and Atmospheric Science offers to the top First Class Honours graduate a medal in recognition of superior achievement in the Physics class.

10. Psychology and Neuroscience

Dr. Lylem E. White Prize

A bequest from the Estate of Dr. Lylem E. White established an endowment to fund a prize to an undergraduate student in Psychology and in Neuroscience. The Department assigns prizes for use in recognizing the best performance of a student in second year in each program.

Dr. W. E. Hensig Prize in Psychology

A fund has been established to provide one or more annual prizes to students who have achieved the highest performance in the introductory psychology course(s) and who are undertaking a Major or Honours degree in Psychology or Neuroscience.

Francis L. Stewart Memorial Prize in Psychology

A fund has been established to provide a prize to a fourth year Honours student who shows outstanding potential as a scientist practitioner in Clinical Psychology.

Susan Paula Forward Memorial Prize in Psychology

Established in the memory of Susan Paula Forward who graduated in 1994 with a Bachelor of Science with Honours in Psychology. She achieved academic excellence during her time, being on the Dean’s list for three consecutive years and receiving the University Medal in Psychology upon graduation. This prize is awarded to a graduating Psychology student who has achieved an excellent academic standing, with a strong background and demonstrated interest in pain research and child development.

The David and Ruth Hatcher Undergraduate Neuroscience Prize

The Neuroscience Institute Prize was established in 1998 by donations from members of the Neuroscience Institute, Dalhousie University. Upon receiving a generous gift from Dr. David and Mrs. Ruth Hatcher, the Neuroscience Institute changed the name of the prize in honour of the Halteds. The prize is awarded to a fourth year Neuroscience Honours student who shows outstanding potential as a researcher in Neuroscience.

University Medal in Neuroscience

The Department of Psychology and Neuroscience offers a medal to the top graduating student with First Class Honours in the program.

University Medal in Psychology

The Department of Psychology and Neuroscience offers a medal to the top graduating student with First Class Honours in the program.

638 Awards
K. College of Sustainability

Deborah Burack Price
This prize is awarded annually in March to an ESS student who has contributed significantly to academic life in the College of Sustainability. Faculty members nominate students to the Awards Committee.

ESS Academic Improvement Prize
This prize is awarded annually in March to an ESS student in her/his fourth year of study who has shown the most academic improvement in her/his course work throughout the degree.

ESS First-year Prize
This prize is awarded annually in March to an ESS student in her/his second year of study who had the highest GPA in her/his first year courses at Dalhousie.

ESS Honours Society
Awarded to ESS students graduating with a cumulative GPA of 3.7 or higher.

ESS Second-year Prize
This prize is awarded annually in March to an ESS student in her/his third year of study who had the highest GPA in her/his second year courses at Dalhousie.

ESS Student Travel Award
A fund has been established to support ESS students for travel with grants of $300 - $500. Students submit a cover letter and budget to the College of Sustainability Awards Committee. The cover letter should explain how the proposed travel will contribute to research experiences or to the application or expansion of the undergraduate academic experience. The budget should include all expected sources of income (including other successful and unsuccessful grant applications) and a list of expected experiences.

ESS SUST-star Prize
This prize is awarded annually to the ESS student graduating with the highest average in all SUST classes.

ESS Thesis Prize
This prize is awarded annually to the student that is judged to have submitted and defended the best Honours thesis.

Rookie-of-the-year Prize
This prize is awarded annually in March to an ESS student in her/his first year of study who had the highest GPA in her/his first year courses at Dalhousie. Faculty members nominate students to the Awards Committee.

University Medal in Environment, Sustainability and Society
This prize of Sustainability offers to the top First Class Honours graduate a medal in recognition of superior achievement in Environment, Sustainability and Society. Awarded at Convocation.

VI. Financial Aid and Loans

A. Government Student Loans

IMPORTANT: Please note that federal and provincial student loan regulations include stipulations for the Borrower in terms of the minimum course load, expressed as a percentage of the normal course load at the University, which the Borrower must carry in order to benefit from the program. This minimum must be maintained throughout the academic year, e.g., a student who wishes to receive either money or interest-free status under the Canada Student Loan Plan for the entire academic year must carry not fewer than 60 per cent of the normal course load (expressed in credit hours) for each term. Please note, to be eligible for provincial loan funding from Newfoundland, you must be registered in 80% of the normal course load. At Dalhousie, the normal credit hour load for student loan purposes is 30. The Borrower must carry not fewer than 18 credit hours, distributed equally between the terms, i.e., six. If your particular program does not conform to this scheme, you should apply to Student Aid for funding for only that term in which your course load would fulfill this regulation. Federal and provincial rules can differ on this matter.

If you must drop or add courses, exercise care so as not to jeopardize your provincial rules can differ on this matter.

B. Addresses of Provincial Student Aid Authorities

Canadian students are to apply for government assistance to the appropriate agency in that province or territory in which the applicant is a bona fide resident.

Alberta
Alberta Student Finance
PO Box 2800
Station Main
Edmonton, AB T5J 4B4
Fax: (780) 422-4516
Tel: (780) 425-3722
1-800-222-6468 (toll free in Canada)
http://www.aisa.gov.ab.ca

British Columbia
Student Services Branch
Ministry of Advanced Education
PO Box 9173
Surrey Provincial Government
Victoria, BC V8W 1K7
Fax: 1-800-262-2112
1-800-581-9180 (toll free in Canada/US)
http://www.srvd.gov.bc.ca/studentaidbc

Manitoba
Manitoba Student Aid Advanced Education
409 - 1111 Portage Avenue
Winnipeg, MB R3G 0T3
Fax: (204) 948-3421
Tel: (204) 945-2313 (outside Manitoba)
1-800-204-1686 (toll free in Manitoba)
http://www.studentaid.gov.mb.ca

New Brunswick
Student Financial Services
Department of Education
PO Box 6000
440 King Street, Suite 420
Fredericton, NB E3B 5H1
Fax: (506) 448-4353
Tel: (506) 453-2317 or
1-800-467-5626 (Atlantic Provinces, Ontario and Quebec only)
http://www.studentaid.nb.ca

Newfoundland & Labrador
Student Financial Services Division
Department of Youth Services and Post-Secondary Education
PO Box 3700
St. John’s, NL A1C 4G6
Fax: (709) 729-2208
1-888-657-0800
http://www.ed.gov.nl.ca/studentaid/

Northwest Territories
Student Financial Assistance
Department of Education
Cultural and Employment Government of NWT
PO Box 1320
Yellowknife, NT X1A 2L9
Fax: 1-800-667-5626 (toll free in Canada/US)
Tel: (867) 873-7190
1-867-873-7190
http://www.studentaid.gov.nw.ca

Nova Scotia
Student Assistance Office
Department of Education
PO Box 2590, Halifax Central
Halifax, NS B3J 3C8
Fax: (902) 424-6450
Tel: (902) 424-8420 (metro)
Undergraduate book  Page 640  Wednesday, March 12, 2014  12:03 PM

The University has established a temporary loan program to assist registered Dalhousie students with certain types of short-term financial difficulty when no other resource is available. Students must provide proof of their ability to repay the loan within the time period. (Loans are not made for tuition fee payment.) These loans have a short interest-free period, after which interest will be charged. Refer to the Temporary Loan Application for further details. Applications may be picked up in the Registrar’s Office, Room 130, Henry Hicks Administration Building, the Sexton Campus Student Service Centre, or online at http://moneymatters.dal.ca.

Visit the University’s bursary program for a maximum of five years. (For secondly) other high schools in the province of Nova Scotia. The recipient may be considered in subsequent years for further assistance. Apply through the general online bursary program.

The University’s bursary program is intended as possible supplementary assistance to help qualifying students with a portion of their educational costs.

The concept of the fund was developed in response to a medical emergency. Prior to the establishment of this Fund, Students, Staff, Faculty and Friends of Dalhousie joined together to provide special funding to assist a student. A donor will decide upon the distribution of funds. This committee will consist of the President of the Student Union, Dean of Students, Coordinator of International Students, president of all “A” societies (including the Engineering Undergraduate Society, the Graduate Student Society, the Architecture Students Association, the Graduate Planning Society and the Computer Science Society). Distribution of funding will be subject to the judgment of the committee taking into account the individual circumstances and needs.

The University has funds for the purpose of assisting its students who may face certain types of financial situations. These bursaries are awarded primarily on the basis of demonstrable need as determined by the appropriate University office or committee, satisfactory academic standing (as defined in Academic Regulations) is also expected. Students whose financial needs are exceptionally large and/or students whose academic standing is unsatisfactory may not be assisted. Normally, bursaries will be awarded only to students who have utilized all other forms of assistance under the Canada Student Loan Program and/or corresponding provincial or territorial loan programs or bank loans. Normally, receipt of the first installment of such funding is a prerequisite to the University’s consideration of an application for bursary assistance. Students may access the bursary program for five years of funding.

A. General—All Faculties

Distribution of funding will be subject to the judgment of the committee taking into account the individual circumstances and needs.

For Architecture and Planning, Computer Science &
A limited number of bursaries are available annually to students who have exhibited a record of considerable leadership achievement. Candidates must also demonstrate consistent satisfactory academic accomplishment. The Selecting Committee may consider such other matters as financial need, service to the University and the community, and character. Submit completed forms to the Department of Athletics and Recreation, which will forward your application with supplementary information.

Dalhousie Memorial Bursary Fund
From time to time Dalhousie contributions have been made to the University as a memorial subscription in honor of some student or former student. Until now there has been no proper place into which these funds could be channeled. Because of these occurrences a Dalhousie Memorial Bursary Fund has been established. The existence of the fund will be commemorated by a book of remembrance to be located in a prominent place in the Killam Library. Names of persons in whose memory contributions have been made by relatives, friends, individuals or groups, to the Memorial Fund will be recorded in the book, along with the date of their birth and death. The pages will be turned on a regular basis. All money contributed to the Fund will be invested by the Board of Governors and only the investment income will be awarded. The award will be available to any full-time Dalhousie student who is a full-time Dalhousie student, has already registered and in attendance at courses, who can show a need for additional support. A student in straitened financial circumstances may be considered for possible assistance by applying through the general online bursary program. For further information please contact the External Relations Office, Dalhousie University.

Alfred George Duvalle Memorial Bursary
This fund provides one bursary to a qualifying Dalhousie student. Applicants must be matriculants of Halifax West High School, be enrolled in first year studies in an undergraduate program (as commonly understood), and demonstrate financial need to the satisfaction of the Selecting Body. Apply through the general online bursary program.

Charles Robert Raefe Dowhooose Memorial Bursary
To honor the memory of Charles Robert Raefe Dowhooose, an endowment was established to provide bursaries for students graduating from Nova Scotia high schools. Apply through the general online bursary program.

The John Dunlop Memorial Bursary
An endowed fund was established to provide a bursary to an academically sound student from a rural area. Apply through the general online bursary program.

Frances Hamilton Grant Bursaries
An endowed bursary fund was established under the will of the late Constable Patric Hamilton in the amount of $18,900, the income to be used to assist students. Apply through the general online bursary program.

DSU Student Wise Health Plan Bursary
To provide financial aid to an undergraduate student or students who are covered by the DSU health care plan. Apply through the general online bursary program. Deadline: October 15.

MacCallum S. Grant Charitable Foundation Bursary
The MacCallum S. Grant Charitable Foundation supports a number of bursaries for Dalhousie University students each year. First priority will be given to students who have lived in Halifax County, Guysborough County and Pictou for a period of at least two years immediately prior to receiving a bursary. Students from the former City of Halifax, Dartmouth and the town of Bedford are not eligible to receive a bursary. The recipients will have demonstrated financial need and satisfactory academic progress. Apply through the general online bursary program. Deadline October 15.

Annie M. Harrison Bursary
The annual income from the bequest of $5,000 from the Estate of Annie M. Harrison provides a number of bursaries. Apply through the general online bursary program.

Alice M. Herterick Bursary
From the Estate of Gertrude H. Fox a bequest was made to endow a bursary fund in the name of Alice M. Herterick. Apply through the general online bursary program.

The Annette S. Hill Bursaries
Applicants must have resided in Nova Scotia for at least two years immediately prior to receiving a bursary. The recipients will have demonstrated financial need and satisfactory academic progress. Apply through the general online bursary program. Deadline October 15.

The Lt. (E) Harry J. Brewer, MBE, CD, RCN (Ret.), Memorial Bursary
Preference is to be given to relatives of the late Dr. Brewer. The bursary is to be continued throughout the courses of the students if they maintain creditable academic standing and show genuine need. Apply through the general online bursary program.

The George Boyd Trust Bursary
A bursary to an undergraduate student born and living in Halifax from a low income family, who shows financial need. Apply through the general online bursary program.

Harry and Kayone Bernstein Bursary
A bursary to an undergraduate student born and living in Halifax from a low income family, who shows financial need. Apply through the general online bursary program.

George Boyd Bursary
The income from the George Boyd Trust will provide an entrance bursary. Preference is to be given to a needy student from the Sydney, Nova Scotia area. Apply through the general online bursary program.

Ernest Breault Memorial Bursaries
These bursaries were established by the gift of Mrs. Ernest Breault of Colorado Springs, USA, in memory of her husband, a distinguished graduate of Dalhousie, Harvard and Columbia. These bursaries are to be awarded by the Registrar’s Office – Awards of the University, which will take into consideration any financial need of the applicant, to students from Prince Edward Island. Preference is to be given to relatives of the late Dr. Breault. The bursaries are to be continued throughout the courses of the students if they maintain creditable academic standing and show genuine need. Apply through the general online bursary program.

The Lu. (E) Harry J. Brewer, MBE, CD, RCN (Ret.), Memorial Bursary
A memorial bursary fund has been established to provide financial assistance to a full-time student who is enrolled in a degree or diploma program. The recipient(s) will have demonstrated financial need and satisfactory academic standing as defined in academic regulations. Apply through the general online bursary program.

George Burris Scholarship
The scholarship was established by Mary Burris and Grace Burris in memory of their father, George Burris, to support Dalhousie students wishing to study in England as part of their academic program. Students are awarded on the basis of academic and extracurricular excellence, financial need, and international experience. Open to Dalhousie University upper year Canadian students who have applied for admission to participate in an International Program/Placement in England. Value: up to $5,000 each. Interested students should complete an application available from the International Centre. Students must submit application a minimum of one month before departure.

Evel Hoger Clarke Textbook Fund
A bequest from the Estate has set up an endowment from which to award bursaries to assist students from certain geographic areas of New Brunswick. Students who are domiciled in King's and Saint John counties are eligible under the terms of the bequest. Apply through the general online bursary program.

Howard C. Clarke International Study Award
A special endowed fund to assist a Dalhousie student who is participating in a recognized study abroad or exchange program for academic credit. Students must demonstrate great financial challenges. Please contact the International Centre for details.

The Rebecca Cohn Bursary Fund
A gift of $4,000 by the executors of the Estate of the late Rebecca Cohn provides an endowed bursary fund for needy students. Apply through the general online bursary program.

Lenore Smith Cunham Bursary
From the Estate of Charles Gordon Cunham came a bequest of $10,000 US to endow a bursary fund to assist needy students. Ms. Cunham expressed a preference for matriculants from Napierite College in Trinidad should such students attend Dalhousie. Apply through the general online bursary program.

Dalhousie Leadership Bursaries
A limited number of bursaries are available annually to students who have exhibited a record of considerable leadership achievement. Candidates must also demonstrate consistent satisfactory academic accomplishment. The Selecting Committee may consider such other matters as financial need, service to the University and the community, and character. Submit completed forms to the Department of Athletics and Recreation, which will forward your application with supplementary information.

Frances Hamilton Grant Bursaries
An endowed bursary fund was established under the will of the late Constable Patrick Hamilton in the amount of $18,900, the income to be used to assist students. Apply through the general online bursary program.
Awards

Mr. & Mrs. Morris Saffron Bursary
Established to provide financial assistance to students who are residents of the town of Springhill, Cumberland County. Apply through the general online bursary program.

Joe A. Mait Phi Kappa Pi Bursary
This bursary was established by Joe Mait to provide an annual bursary to a brother of the Phi Kappa Pi Fraternity. The Fraternity will provide Dalhousie a short list of second year students who have a demonstrated financial need. Please contact the Phi Kappa Pi Fraternity for the application form. Deadline: September 30.

Leslie Shaw Bursary
This bursary was established by Allan, Gabrielle and Sarah Shaw for Leslie Shaw to honour her and to celebrate her 90th birthday. Leslie Shaw dedicates her professional and volunteer life to the betterment of our society. This bursary is awarded annually to landed immigrants and or international students whose first language is not English. First preference will be given to students who are either landed immigrants or returning to become landed immigrants. Apply through the general online bursary program. Deadline: February 15.

Charles A. Smith Memorial Bursary
Charles A. Smith was a black Nova Scotian born in 1926. He pursued his career on the railway, starting as a sleeping car attendant and retiring at a senior level in customer service with Via Rail. This renewable bursary will be available to assist one or more Nova Scotia black students who are single parents enrolled in undergraduate studies at Dalhousie.

Apply through the general online bursary program. Deadline: October 15.

The Rt. Honourable Robert L. Stanfield Bursary
Established by the Windsor Foundation in recognition of the contributions of the Rt. Honourable Robert L. Stanfield. This fund provides one or more bursaries annually to Black Nova Scotians who are full-time students at Dalhousie University. Apply through the general online bursary program. Deadline: October 15.

Superstore Bursary
This bursary, of $1,000, is awarded annually to a mature undergraduate student who has demonstrated financial need. Apply through the general online bursary program. Deadline: October 15.

Telf Financial Group Bursary
This bursary is available to part-time or full-time students who demonstrate financial need. Recipients may be residents of any province or territory in Canada. Apply through the general online bursary program.

Leslie Shaw Bursary
Provides one or more bursaries for students in their first year of an undergraduate degree program at Dalhousie University. Apply through the general online bursary program.

Women's Division Bursaries
A number of bursaries, based on financial need, will be offered directly from the Women's Division of the Dalhousie Alumni Association. Apply through the general online bursary program. A separate essay and one page application will also be required to be submitted to the Alumni Office addressed to the Chair of the Scholarship Committee, Women's Division. Deadline: for online application October 15; for additional essay and one page application to the alumni office December 10.
The late Mrs. Olga Munro Hillis made provision for the establishment of the Wilfred E. Hillis Bursary Bachelor of Arts degree. Apply through the general online bursary program. An annual bursary for a student enrolled in the second, third, or fourth year of a Social Sciences at Dalhousie University. The recipient must have demonstrated financial need by submitting a bursary application. Selections are made by the Scholarship Committees of the School of Architecture and the School of Planning.

Dr. Ruth M. Goldblum Bursary

This fund was established in 1995 to honor Dr. Goldblum CM, on the occasion of her installation as Chancellor of the Technical University of Nova Scotia. This bursary is awarded annually to a female student entering her third year of study in the Faculty of Architecture and Planning, Faculty of Computer Science or the Faculty of Engineering. The recipient will have achieved satisfactory academic standing and demonstrated financial need. Application required. Deadline: April 30.

Maritime Robbies and Crafts Bursary

This $300 bursary, donated by Maritime Robbies and Crafts, provides financial assistance to a full-time student entering the winter term of the BDES or MArch program in the School of Architecture. Applicants must be making satisfactory academic progress and must demonstrate financial need by submitting a bursary application. The selection is made by the School of Architecture Scholarship Committee.

Barry and Marga John Family Bursary

This $1,000 bursary, donated by Barry John (BArch 1972), provides financial assistance to a student entering the third year of the BDES program or MArch program in the School of Architecture. Applicants must be making satisfactory academic progress and must demonstrate financial need by submitting a bursary application. The selection is made by the School of Architecture Scholarship Committee.

The Michael G. Johnston Memorial (Entrance) Bursary

This annual $500 bursary has been established in the memory of Michael G. Johnston by the Board of Governors of the University. Michael G. Johnston was a Fellow of the Fountain School of Performing Arts. Deadline: October 15.

The Sophie MacLead Memorial Bursary

Sophie MacLead (1901-2001) received a Bachelor of Arts from Dalhousie in 1925. She enjoyed a long and distinguished career in teaching and for many years taught English at Bloomfield School in Halifax. This bursary is awarded annually to students majoring in English or undertaking a double major or combined honours degree with English as one of their focuses. Apply through the general online bursary program.

Charles and Mary MacLennan Bursary in Music

Established to honour the memory of Charles G. MacLennan, who was active in the musical life of Dalhousie University, and his wife, Mary Jackson MacLennan, who had a lifelong interest in amateur theatre. This bursary is awarded to one (or more) undergraduate student(s) in Music who has/have shown artistic excellence in theatre (acting, writing, design, etc.). Eligible recipients will have completed at least one year of study in their undergraduate program at Dalhousie University. The value of the award is $2,900. Applicants will apply to the general online bursary program as well as to the Fountain School of Performing Arts. Deadline: October 15.

The Kenneth and Lloyd McDonald Bursary

A gift of the McDonald family in 1976 makes possible the funding of an annual bursary to a deserving and needy student. Apply through the general online bursary program.

Elizabeth McKenna Class of 1981 Bursary

Established to honour the memory of Elizabeth McKenna, who was active in the musical life of Dalhousie University, and her husband, John David Allen, who had a lifelong interest in amateur theatre. This bursary is awarded to one (or more) undergraduate student(s) in Music who has/have shown artistic excellence in music (vocal, instrumental or other). Eligible recipients will have completed at least one year of study in their undergraduate program at Dalhousie University. The value of the award is $2,000. Applicants will apply to the general online bursary program as well as to the Fountain School of Performing Arts. Deadline: October 15.

Elizabeth McKenna Scholarship Fund

The Elizabeth McKenna Scholarship Fund was established in 1928 for the purpose of providing what are known today as bursaries. Applicants must be bona fide residents of one of the Maritime Provinces and be entering the first year in the College of Arts and Science. Apply through the general online bursary program.

Annie S. MacKenzie Class of 1915 Bursary

Under the will of the late Edna L. MacKenzie the University has been given a bequest to provide bursaries in Arts and Science, Dentistry and Law. One-third of the net income is to be used for the purpose of funding a bursary to one or more students. The recipient must be a bona fide resident of and domiciled in the County of Victoria (as defined by the boundaries then existent in AD 1900), Nova Scotia. Character and financial need are the main criteria. Apply through the general online bursary program.

Dr. Rosemary Theresa Holton & Stephen A. Holton Bursary

Provides financial assistance for one or more undergraduate students who are majoring in English. Apply through the general online bursary program.
Awards

Scholarships and Awards Committee of the Faculty of Engineering. Deadline: maintaining an acceptable academic standard. Selection is carried out by the award is made on the basis of participation in Dalhousie athletics, with an involvement, scholastic ability, and financial need. Application required. Deadline: April 30.

Science and Engineering. The bursary is awarded on the basis of community interest in all who came into contact with him. Candidates must have fulfilled or expect to fulfill the minimal entrance requirements for an undergraduate program in Architecture and Planning, or for entrance into the third year of Computer Science. Application required. Deadline: April 30.

The Rod Shoveller Memorial Bursary
This annual $500 bursary has been established in the memory of Michael G. Shoveller, a valued member of the Dalhousie Board of Governors who expressed sincere interest in all who came into contact with him. Candidates must have fulfilled or expect to fulfill the minimal entrance requirements for an undergraduate program in Architecture and Planning, or for entrance into the third year of Computer Science and Engineering. The award is based primarily on financial need but the Committee also considers the academic record of the applicant. Deadline: September 30.

Dr. Ruth M. Goldbloom Bursary
This fund was established in 1995 to honour Dr. Goldbloom CM, on the occasion of her installation as Chancellor of the Technical University of Nova Scotia. This bursary will apply to the general online bursary program as well as to the Fountain School of Performing Arts.

Walker Wood Foundation Theatre Bursary
This Foundation will provide a four year renewable bursary to a student planning on majoring in Theatre. The student must major in Theatre, be in good standing, and must be Canadian Citizen with a demonstrated financial need. Preference will be given to a student entering directly from a high school in Atlantic Canada. Apply through the general online bursary program.

D. Faculty of Computer Science

Unless otherwise noted, selection of bursary awardees is carried out by the Undergraduate Awards and Scholarships Committee of the Faculty of Engineering augmented by representatives of the Faculty of Computer Science. Application forms are available from the Offices of the Deans of Engineering or Computer Science. Deadline: September 30.

Dr. Ruth M. Goldbloom Bursary
This fund was established in 1995 to honour Dr. Goldbloom CM, on the occasion of her installation as Chancellor of the Technical University of Nova Scotia. This bursary will apply to the general online bursary program as well as to the Fountain School of Performing Arts.

Walker Wood Foundation Theatre Bursary
This Foundation will provide a four year renewable bursary to a student planning on majoring in Theatre. The student must major in Theatre, be in good standing, and must be Canadian Citizen with a demonstrated financial need. Preference will be given to a student entering directly from a high school in Atlantic Canada. Apply through the general online bursary program.

The Michael G. Johnston Memorial Entrance Bursary
This annual $500 bursary has been established in the memory of Michael G. Johnston by the Board of Governors of the University. Michael G. Johnston was a valued member of the Dalhousie Board of Governors who expressed sincere interest in all who came into contact with him. Candidates must have fulfilled or expect to fulfill the minimal entrance requirements for an undergraduate program in Architecture and Planning, or for entrance into the third year of Computer Science and Engineering. The award is based primarily on financial need but the Committee also considers the academic record of the applicant. Deadline: September 30.

The Rod Shoveller Memorial Bursary
This annual $500 bursary has been established by the Student Union of Dalhousie and is supported by students, alumni, family, friends and colleagues. Mr. Shoveller was the Athletic Director of TUHS from 1980 to 1993 and acted as counselor, mentor and friend to the hundreds of students who came to know his compassion and understanding. Eligible students are entering first full-time undergraduate year in the Faculty of Architecture and Planning, or in Engineering. The award is made on the basis of financial need and demonstrated financial need. Application required. Deadline: April 30.

The Michael G. Johnston Memorial Entrance Bursary
This annual $500 bursary has been established in the memory of Michael G. Johnston by the Board of Governors of the University. Michael G. Johnston was a valued member of the Dalhousie Board of Governors who expressed sincere interest in all who came into contact with him. Candidates must have fulfilled or expect to fulfill the minimal entrance requirements for an undergraduate program in Architecture and Planning, or for entrance into the third year of Computer Science and Engineering. The award is based primarily on financial need and demonstrated financial need. Application required. Deadline: April 30.

The John J. Jodrey (Entrance) Bursary
This annual $500 bursary has been established in the memory of Michael G. Johnston by the Board of Governors of the University. Michael G. Johnston was a valued member of the Dalhousie Board of Governors who expressed sincere interest in all who came into contact with him. Candidates must have fulfilled or expect to fulfill the minimal entrance requirements for an undergraduate program in Architecture and Planning, or for entrance into the third year of Computer Science and Engineering. The award is based primarily on financial need and demonstrated financial need. Application required. Deadline: April 30.

The J. D. (Dan) Arting Memorial Nova Scotia Road Builders Association Bursary
This fund was established in 1995 to honour Dr. Goldbloom CM, on the occasion of her installation as Chancellor of the Technical University of Nova Scotia. This bursary will apply to the general online bursary program as well as to the Fountain School of Performing Arts.

Walker Wood Foundation Theatre Bursary
This Foundation will provide a four year renewable bursary to a student planning on majoring in Theatre. The student must major in Theatre, be in good standing, and must be Canadian Citizen with a demonstrated financial need. Preference will be given to a student entering directly from a high school in Atlantic Canada. Apply through the general online bursary program.

The Michael G. Johnston Memorial Entrance Bursary
This annual $500 bursary has been established in the memory of Michael G. Johnston by the Board of Governors of the University. Michael G. Johnston was a valued member of the Dalhousie Board of Governors who expressed sincere interest in all who came into contact with him. Candidates must have fulfilled or expect to fulfill the minimal entrance requirements for an undergraduate program in Architecture and Planning, or for entrance into the third year of Computer Science and Engineering. The award is based primarily on financial need but the Committee also considers the academic record of the applicant. Deadline: September 30.

Dr. Ruth M. Goldbloom Bursary
This fund was established in 1995 to honour Dr. Goldbloom CM, on the occasion of her installation as Chancellor of the Technical University of Nova Scotia. This bursary will apply to the general online bursary program as well as to the Fountain School of Performing Arts.

Walker Wood Foundation Theatre Bursary
This Foundation will provide a four year renewable bursary to a student planning on majoring in Theatre. The student must major in Theatre, be in good standing, and must be Canadian Citizen with a demonstrated financial need. Preference will be given to a student entering directly from a high school in Atlantic Canada. Apply through the general online bursary program.

The Michael G. Johnston Memorial Entrance Bursary
This annual $500 bursary has been established in the memory of Michael G. Johnston by the Board of Governors of the University. Michael G. Johnston was a valued member of the Dalhousie Board of Governors who expressed sincere interest in all who came into contact with him. Candidates must have fulfilled or expect to fulfill the minimal entrance requirements for an undergraduate program in Architecture and Planning, or for entrance into the third year of Computer Science and Engineering. The award is based primarily on financial need but the Committee also considers the academic record of the applicant. Deadline: September 30.

Dr. Ruth M. Goldbloom Bursary
This fund was established in 1995 to honour Dr. Goldbloom CM, on the occasion of her installation as Chancellor of the Technical University of Nova Scotia. This bursary will apply to the general online bursary program as well as to the Fountain School of Performing Arts.

Walker Wood Foundation Theatre Bursary
This Foundation will provide a four year renewable bursary to a student planning on majoring in Theatre. The student must major in Theatre, be in good standing, and must be Canadian Citizen with a demonstrated financial need. Preference will be given to a student entering directly from a high school in Atlantic Canada. Apply through the general online bursary program.

The Michael G. Johnston Memorial Entrance Bursary
This annual $500 bursary has been established in the memory of Michael G. Johnston by the Board of Governors of the University. Michael G. Johnston was a valued member of the Dalhousie Board of Governors who expressed sincere interest in all who came into contact with him. Candidates must have fulfilled or expect to fulfill the minimal entrance requirements for an undergraduate program in Architecture and Planning, or for entrance into the third year of Computer Science and Engineering. The award is based primarily on financial need but the Committee also considers the academic record of the applicant. Deadline: September 30.

Dr. Ruth M. Goldbloom Bursary
This fund was established in 1995 to honour Dr. Goldbloom CM, on the occasion of her installation as Chancellor of the Technical University of Nova Scotia. This bursary will apply to the general online bursary program as well as to the Fountain School of Performing Arts.

Walker Wood Foundation Theatre Bursary
This Foundation will provide a four year renewable bursary to a student planning on majoring in Theatre. The student must major in Theatre, be in good standing, and must be Canadian Citizen with a demonstrated financial need. Preference will be given to a student entering directly from a high school in Atlantic Canada. Apply through the general online bursary program.

The Michael G. Johnston Memorial Entrance Bursary
This annual $500 bursary has been established in the memory of Michael G. Johnston by the Board of Governors of the University. Michael G. Johnston was a valued member of the Dalhousie Board of Governors who expressed sincere interest in all who came into contact with him. Candidates must have fulfilled or expect to fulfill the minimal entrance requirements for an undergraduate program in Architecture and Planning, or for entrance into the third year of Computer Science and Engineering. The award is based primarily on financial need but the Committee also considers the academic record of the applicant. Deadline: September 30.

Dr. Ruth M. Goldbloom Bursary
This fund was established in 1995 to honour Dr. Goldbloom CM, on the occasion of her installation as Chancellor of the Technical University of Nova Scotia. This bursary will apply to the general online bursary program as well as to the Fountain School of Performing Arts.

Walker Wood Foundation Theatre Bursary
This Foundation will provide a four year renewable bursary to a student planning on majoring in Theatre. The student must major in Theatre, be in good standing, and must be Canadian Citizen with a demonstrated financial need. Preference will be given to a student entering directly from a high school in Atlantic Canada. Apply through the general online bursary program.

The Michael G. Johnston Memorial Entrance Bursary
This annual $500 bursary has been established in the memory of Michael G. Johnston by the Board of Governors of the University. Michael G. Johnston was a valued member of the Dalhousie Board of Governors who expressed sincere interest in all who came into contact with him. Candidates must have fulfilled or expect to fulfill the minimal entrance requirements for an undergraduate program in Architecture and Planning, or for entrance into the third year of Computer Science and Engineering. The award is based primarily on financial need but the Committee also considers the academic record of the applicant. Deadline: September 30.

Dr. Ruth M. Goldbloom Bursary
This fund was established in 1995 to honour Dr. Goldbloom CM, on the occasion of her installation as Chancellor of the Technical University of Nova Scotia. This bursary will apply to the general online bursary program as well as to the Fountain School of Performing Arts.

Walker Wood Foundation Theatre Bursary
This Foundation will provide a four year renewable bursary to a student planning on majoring in Theatre. The student must major in Theatre, be in good standing, and must be Canadian Citizen with a demonstrated financial need. Preference will be given to a student entering directly from a high school in Atlantic Canada. Apply through the general online bursary program.

The Michael G. Johnston Memorial Entrance Bursary
This annual $500 bursary has been established in the memory of Michael G. Johnston by the Board of Governors of the University. Michael G. Johnston was a valued member of the Dalhousie Board of Governors who expressed sincere interest in all who came into contact with him. Candidates must have fulfilled or expect to fulfill the minimal entrance requirements for an undergraduate program in Architecture and Planning, or for entrance into the third year of Computer Science and Engineering. The award is based primarily on financial need but the Committee also considers the academic record of the applicant. Deadline: September 30.
is given in memory of John Winston MacDonald who was graduated from Dalhousie University in 1929 with a Bachelor of Science degree and the Diploma in Engineering, and from the Nova Scotia Technical College in 1931. Apply through the Faculty of Engineering. Contact the department for the deadline.

Ian Noseworthy Bursary
This bursary has been established in memory of Ian Noseworthy by his family and friends. Dr. Mr. Noseworthy was a fourth year student in Chemical Engineering at the time of his death. Eligible students are to be registered in the fourth year of a Bachelor of Engineering in Chemical Engineering. The award is made on the basis of demonstrated financial need and satisfactory academic standing. Deadline: September 30.

Nova Scotia Department of Transportation and Public Works Bursary
This endowment has been established to provide a bursary(ies) of $1,250 to one or more full-time student(s) who are considered permanent residents of Nova Scotia and entering the third year of the undergraduate program of the Faculty of Engineering. The student(s) will have demonstrated financial need and achieved a 3.0 average. Co-op placement with the Department of Transportation and Public Works may be made available. Upon completion of study/graduation, an opportunity of employment may be extended. Applications should be submitted to the Awards Committee of the Faculty of Engineering. Application deadline: April 30.

The Jason Paquet Memorial Bursary
This bursary, valued at $500 has been established in memory of Jason Paquet by his family, friends, fellow students, faculty and alumni of mechanical engineering. Mr. Paquet was registered as a fourth year mechanical engineering student at the time of his death. Eligible students are to be registered in the Junior Year of the Mechanical Engineering program of the Faculty of Engineering. The award is based primarily on financial need. Preference will be given to students who were residents of Prince Edward Island prior to attending Dalhousie. Deadline: September 30.

The Rod Shoveller Memorial Bursary
This $500 bursary has been established by the Student Union of Dalhousie and is supported by students, alumni, family, friends and colleagues. Mr. Shoveller was the Athletic Director of TUNS from 1980 to 1991 and acted as counsellor, mentor and friend to the hundreds of students who came to know his compassion and understanding. Eligible students are entering their penultimate term of study in the Faculty of Architecture and Planning, Computer Science, or Engineering. The award is made on the basis of participation in Dalhousie athletics, with an emphasis on intramurals and financial need, provided that the applicant is registered with the Athletics Office. Preference will be given to a student entering first year of the undergraduate program of the Faculty of Engineering. Application deadline: April 30.

The Dr. H. G. Sherwood Memorial Entrance Bursary
This $300 bursary has been established in memory of Dr. H. G. Sherwood by former employees, friends and colleagues. Dr. Sherwood was a dedicated professor in the Mining Engineering program at Dalhousie for many years. Eligible candidates must have fulfilled or expect to fulfill the minimum entrance requirements into year three of the Mining Engineering undergraduate program in the Faculty of Engineering. The Bursary is awarded on the basis of the applicant’s academic standing in an Associate Degree in Mining Engineering or the previous years at Dalhousie. While academic excellence will be the primary criterion for the award, the selection committee may also weigh other considerations in reaching a decision. Deadline: April 30.

Lloyd Hopkins Wickwire Bursary
An endowment has been established through a bequest from the Estate of Lloyd H. Wickwire, an alumnus of the Nova Scotia Technical College and Dalhousie University. This endowment is meant to provide annual bursaries to students studying engineering at Dalhousie University. Applicants must demonstrate financial need and be in good academic standing. Apply through the general online bursary program.

Susan (Cory) Wickwire Bursary in Engineering
An endowment has been established in memory of Susan (Cory) Wickwire, a former school teacher whose four sons are University alumni. The bursary is open to students for promotion from year one to year two in the Dalhousie Faculty of Engineering. The recipient will have demonstrated financial need and satisfactory academic standing. Apply through the Faculty of Engineering. Contact the department for the deadline.

W. Lee and S. Wong Bursary
This bursary celebrates 50 years of friendship between Wayne Lee and Sam Wong which roots in Halifax. To be awarded to international students within the Engineering Faculty (Undergraduate) on the basis of character, positive attitude and need. Apply through the general online bursary program. Deadline: October 15.

F. Faculty of Health Professions

1. College of Pharmacy

P. NOTE: The College administers the following bursaries. Applications are available directly from the College of Pharmacy and, upon completion, must be submitted to the College.

Malcolm and Aileen Campbell Bursary in Pharmacy
This bursary was established in 2012 to honour Malcolm and Aileen Campbell, alumni of the College of Pharmacy, and the contributions they made to the pharmacy profession in the province of Nova Scotia. The recipient will be a student entering first year of the pharmacy program at Dalhousie who demonstrates financial need. Preference will be given to a student from Prince County. For details of application procedure please contact the College of Pharmacy.

Alice and Louis Cassidy Award
This award was established by Louis Cassidy in memory of Alice Cassidy who graduated from Pharmacy in 1932 and practiced in the profession for over 50 years. This fund annually supports one or more bursaries for students in the Pharmacy program who have demonstrated satisfactory academic standing and financial need.

The Bert and Betty Collins Bursary
An endowment has been established to award an annual bursary to a deserving pharmacy student from New Brunswick who is enrolled in the first, second and third years of the Pharmacy program. These students must have satisfactory academic standing and financial need.

The Jack Kidd/ACA Bursary
In 1982, an endowment was established first for a scholarship and then in 1987 changed to a bursary that recognizes 45 years of service of Mr. Jack Kidd, a pharmaceutical sales representative, with Astra Inc. It is awarded to a student from New Brunswick or Prince Edward Island who has successfully completed one or more years of the class leading to a degree in pharmacy and who is enrolled in pharmacy at the University for the ensuing year. The student must have satisfactory academic standing and demonstrate financial need.

Lavina Davis Bursary
This bursary is awarded to a second, third or fourth year student from the Atlantic Provinces who has satisfactorily completed at least one year of study at the College of Pharmacy and who demonstrates financial need.
Awards

646  Awards

at least four courses and be in good academic standing. Applications are available to students enrolled in the accelerated program must have completed at least one full year of studies. Students in the second or third year of the Bachelor of Nursing program. Students on oncology/palliative care nursing elective course(s) in their program of study will be given preference over other applicants. Students must complete the School of Nursing Undergraduate Bursary Application and also submit a written application to the School of Nursing, demonstrating their interest and proficiency in Cancer Nursing, as well as a desire to establish a career and practice in Cancer Nursing. Contact the School of Nursing for the deadline. These bursaries are open to students enrolled in the Bachelor or Master of Social work program at Dalhousie University who demonstrate financial need. Preference given to a student born in, or a resident of, the Halifax County. Up to eight bursaries of $2,000 each to support students who have been accepted into the international exchange program and might otherwise not be able to participate in the exchange without external funding. These bursaries were originally created by Mr. Scott Shepherd (MBA 1983), the Northeast Trade Finance - Mary Grover LeBlanc Memorial Fellowship. It was renamed the Northeast Trade Finance - Thomas J. Bata Memorial Fellowship in 2010, in memory of Thomas Bata (1914-2008). Mr. Bata immigrated to Canada in 1939 from the former Czechoslavakia to form the Bata Shoe Company of Canada. Long before it was fashionable to do so, he provided opportunities for education and advancement to people of all races and cultures. He introduced his workforce to modern technology and previously unknown standards of quality and workmanship and helped many of them establish businesses of their own. Apply through the Center for International Trade and Transportation. Two bursaries are funded annually by Loblaw Investments in order to assist students enrolled in the Rowe School of Business. Students must demonstrate financial need and be of satisfactory academic standing. Application required to the Rowe School of Business. Contact the Rowe School of Business for the deadline. 4. School of Social Work 1. The following Bursaries are offered by the Registrar's Office.

Hannah G. Matheson Bursaries

These bursaries are open to students enrolled in studies in the School of Social Work at either the undergraduate or graduate level. Apply through the general online bursary program.

Nicholas P. Meagher Memorial Bursary

Established in honour of Nicholas P. Meagher who received a BSc from Dalhousie in 1948 and was a popular and respected pharmacist at Dunsworth's Pharmacy on Quinpool Road for all of his working life. This fund annually supports one or more bursaries to students in the Pharmacy program who have demonstrated financial need.

New Brunswick Pharmacological Society Bursaries

The New Brunswick Pharmacological Society offers four bursaries to students enrolled in the School of Pharmacy who have achieved satisfactory academic performance and demonstrate financial need.

Shoppers Drug Mart Community Pharmacy Bursaries

Shoppers Drug Mart will sponsor three bursaries to students enrolled in the Bachelor of Science in Radiological Technology who have successfully completed clinical practicum 1, 2, 3, 4. This award is based on the students' professional attributes and accountability, involvement in the student association or school committees, and GPA. Contact the department for the deadline.

The Janet Lee Myers Memorial Bursary

To provide an annual bursary(ies) for one (or more) student(s) enrolled in the Bachelor of Science in the field of Social Work. Normally, successful applicants will be given preference over other applicants. Students must demonstrate financial need and be of satisfactory academic standing. Application required to the School of Social Work. Contact the School of Social Work for the deadline.

Lloyd MacInnis Memorial Bursary

The Lloyd Y. MacInnis Memorial Award Fund was established to provide an annual bursary to a qualifying student who is continuing his or her studies at the School in the baccalaureate program beyond first year. Apply through the general online bursary program.

Jane Wisdom Memorial Bursary

When Jane Wisdom began her caring work in Halifax shortly before the Great Explosion of 1917, she was truly a pioneer in what has come to be known as Social Work. It is in recognition of her distinguished service that anonymous donors in 1977 established an endowment fund whereby one or more annual bursaries to one or more deserving students would be granted to students in the baccalaureate program of the School of Social Work at Dalhousie University. Apply through the general online bursary program.

The Tung Chun Ngan Memorial Bursary

To provide a bursary to a student entering their fourth year of the Bachelor of Nursing program who has achieved satisfactory academic performance and demonstrate financial need.

The New Brunswick Pharmaceutical Society Bursaries

The New Brunswick Pharmacological Society offers four bursaries to students enrolled in the School of Pharmacy who have achieved satisfactory academic performance and demonstrate financial need.

Shoppers Drug Mart Community Pharmacy Bursaries

Shoppers Drug Mart will sponsor three bursaries to students enrolled in the Bachelor of Science in Radiological Technology who have successfully completed clinical practicum 1, 2, 3, 4. This award is based on the students' professional attributes and accountability, involvement in the student association or school committees, and GPA. Contact the department for the deadline.

The Janet Lee Myers Memorial Bursary

To provide an annual bursary(ies) for one (or more) student(s) enrolled in the Bachelor of Science in the field of Social Work. Normally, successful applicants will be given preference over other applicants. Students must demonstrate financial need and be of satisfactory academic standing. Application required to the School of Social Work. Contact the School of Social Work for the deadline.
H. Faculty of Science

Alysia D. Abriel Memorial Bursary
Dr. Mondor-C. Uotila created this bursary to honor the memory of her grandmother, Alysia Abriel, who always followed her passions. The bursary is to assist a female student enrolled in the Honours Biology, Chemistry or Biochemistry program who has demonstrated financial need and a good academic standing. Apply through the general online bursary program. Deadline: October 15.

The veggies Budry Bursary
Manoj Walia is a member of a family of WWII refugees from Estonia who immigrated to Canada in 1950 via Sweden. This bursary is to provide financial assistance to undergraduate science students enrolled at Dalhousie University who demonstrated financial need and satisfactory academic standing. Apply through the general online bursary program. Deadline: October 15.

Audrey-Lex Dowson Memorial Bursary
A memorial bursary is open annually to one or more female students enrolled in the Bachelor of Science program who have demonstrated financial need and satisfactory academic standing. Apply through the general online bursary program. Deadline: October 15.

David Andrew Dougall Memorial Bursary
The intent of this award is to encourage and assist one or more students whose academic and financial status merit consideration. Please apply to the Department of Biology in September of each academic year.

Allan Choliner Hill Bursary
The Allan Choliner Hill Bursary endowment was established by his daughter Alison Biermann-Hill in her father’s memory. A bursary is available to a second or third-year chemistry student. Apply through the general online bursary program. Deadline: October 15.

Mathematics and Statistics Bursary Fund
An annual bursary to be awarded to a student enrolled in the second, third or fourth year of an undergraduate program, leading to degrees in Mathematics or Statistics at Dalhousie University. The recipient will have demonstrated financial need and satisfactory academic standing. Apply through the general online bursary program. Deadline: October 15.

Professor W. Russell MacNeill Memorial Bursaries
Any residual income remaining in the Fund after the annual scholarships have been determined may, after consultation with the Department of Economics, be used to fund one or more bursaries for deserving students entering the fourth year of the Honours program in Economics. Awarded by the Department of Economics and the Registrar’s Office. Application not required.

Elizabeth McKenna Bursaries
The Elizabeth McKenna Scholarship Fund was established in 1928 for the purpose of providing what are known today as bursaries. Applicants must be bona fide residents of one of the Maritime Provinces and be entering the first year in the College of Arts and Science. Apply through the general online bursary program. Deadline: October 15.

Dr. Catherine Olding Hub Memorial Bursary
This bursary was established in memory of Catherine Olding Hub. The recipient must be a resident of one of the Atlantic provinces, must be studying in the Department of Biology, Bachelor of Science program and demonstrate financial need. Apply through the general online bursary program. Deadline: October 15.

Ron Hayes and Dixie Pellatt Bursary in Biochemistry and Molecular Biology
This bursary is to honor the memory of Ron Hayes and Dixie Pellatt by providing an annual bursary to a student enrolled in a BSc program in Biochemistry and Molecular Biology. Eligible recipients will have completed at least one year of study in their undergraduate program at Dalhousie. The bursary recognizes both academic excellence and financial need. Apply through the general online bursary program. Deadline: October 15.

Yau Hing Shum-Ngan Memorial Bursary
Dr. Ngan established this bursary in memory of his mother, Yau Hing Shum-Ngan. The bursary shall be awarded to a first-year undergraduate student enrolled with the Faculty of Science with demonstrated financial need. Apply through the general online bursary program. Deadline: October 15.

I. College of Sustainability

Anubh & Victoria Stuart International Internship Bursary
This bursary provides one or more international internship bursaries for second or third-year students enrolled in the Environment, Sustainability and Society (ESS) undergraduate program of the College of Sustainability.

Deborah Raccurd Bursary
This bursary supports a student who wishes to participate in an internship or experiential learning opportunity with the College of Sustainability.

VIII. Continuing Education Awards and Bursaries

Students who are engaged in part-time studies for credit are eligible to be considered for awards and financial assistance. Each of these is described briefly below.

The Frederick Thomas Parker Award for Part-Time Studies
This award will provide an appropriate and flexible means of encouraging students intending to undertake degree or diploma studies at Dalhousie on a part-time basis. The selection committee will take into account both academic performance and financial need, depending upon circumstances. Applications are available at the College of Continuing Education.

Canada Student Loan for Part-Time Students
This particular federal loan is intended to help students who have a small cash-flow problem at the beginning of their studies. In order to qualify on the basis of class load for a standard academic year, a student must be tuition to take between 20% and 59% of a course load. The application form is available from Nova Scotia Student Aid Office, and is to be completed by the Registrar’s Office.

Dalhousie University Undergraduate Bursaries
Students who are registered in six credit hours per term will be considered for bursaries. Apply through the general online bursary program through the moneymatters.dal.ca

Program dates: Fall: September 15 - October 15
Winter: January 15 - February 15
Summer: May 15 - June 15

Dalhousie Temporary Loans
Students who are engaged in part-time studies for credit will be considered for temporary loans. Such loans are intended for short-term needs, and repayment is required after the expiration of a predetermined grace period. Application is to be made at the Registrar’s Office.
Index

A
Academic ........................................................................................................ 62
Academic Advice ..................................................................................... 52
Academic Data ........................................................................................ 4
Academic Dismissal .................................................................................. 3, 38
Academic Programs Preparation for Other Programs .................................. 35
Academic Regulations ............................................................................. 32
Academic Dismissal .................................................................................. 38
Academic Standing ................................................................................... 37
Appeals ....................................................................................................... 40
Assessment ............................................................................................... 56
Audit of Classes ........................................................................................ 35
Counting of Credits for Two Dalhousie Undergraduate Degrees................. 33
Duration of Undergraduate Studies ................................................................ 35
Experimental Classes ................................................................................ 55
Graduation .................................................................................................. 40
Graduation Standing .................................................................................. 39
Part-Time Students .................................................................................... 54
Reassessment of a Final Grade .................................................................... 37
Registration ................................................................................................. 33
Transfer Students ...................................................................................... 34
Academic Sessions, definition ..................................................................... 3
Academic Standing ..................................................................................... 37
Acceptable Use of Information Technology Resources ................................ 31
Accommodation Policy For Students ........................................................ 21
Accounts ..................................................................................................... 595
Admission Data .......................................................................................... 1
Admission Deposit ..................................................................................... 595
Admission Requirements .......................................................................... 10
Application submissions ............................................................................. 19
Early Acceptance ....................................................................................... 19
Final Acceptance ....................................................................................... 19
International Baccalaureate and Advanced Placement Classes ................. 11
International Students ............................................................................. 10
Language Tests .......................................................................................... 11
Mature Students ......................................................................................... 12
Program Requirements ............................................................................. 10
Recreation .................................................................................................... 14
Rescission of Acceptance .......................................................................... 20
Response to Applications .......................................................................... 19
Transfer Students ...................................................................................... 11
Visiting Students - Canadian ...................................................................... 11
Visiting Students - International and Exchange ........................................... 11
Advanced Standing, definition ................................................................... 3
Advising and Access Services Centre (AASC) ........................................... 588
African Studies, Centre for ........................................................................ 583
Agriculture ................................................................................................ 63
Agriculture, Faculty of ............................................................................... 49
Agronomy .................................................................................................... 63
Alumni Association/Alumni Relations ........................................................ 588
Anatomy and Neurobiology ....................................................................... 461
Animal Science .......................................................................................... 64
Anthropology, see Sociology & Social Anthropology ................................... 306
Appeals ....................................................................................................... 40
Application Dates ....................................................................................... 2
Applied Science ........................................................................................ 68
Agriculture ................................................................................................ 71
Arabic .......................................................................................................... 143
Architecture ............................................................................................... 107
Architecture and Planning, Faculty of ....................................................... 107
Architecture, School of .............................................................................. 107
Art ............................................................................................................. 71
Arts and Science, College of ....................................................................... 124
Arts and Social Sciences ............................................................................. 144
Arts and Social Sciences, Faculty of ........................................................... 142
Arts Centre ................................................................................................ 589
Assessment ................................................................................................. 36
Athletics and Recreational Services ............................................................ 588
Atlantic Health Promotion Research Centre ............................................. 582
Atlantic Institute of Criminology ................................................................. 582
Atlantic Research Centre (ARC) ................................................................ 40
Audit of Classes .......................................................................................... 35
Audit fees .................................................................................................... 595
Audit Student, definition ............................................................................ 3
Avery Prize ................................................................................................ 624
Awards Index ............................................................................................ 653
B
Bachelor of Technology - Environmental Landscape Horticulture ............. 57
Biochemistry and Molecular Biology .......................................................... 466
Biology ...................................................................................................... 72, 471
Biophysics ................................................................................................ 463
Black Student Advising Centre (BSAC) ..................................................... 588
Bookstore ................................................................................................ 594
Brain Repair Centre .................................................................................. 582
Bursaries ................................................................................................. 600, 640
Business Administration, School of ......................................................... 441
Business Minor in ...................................................................................... 131
C
Canadian Institute of Fisheries Technology (CIFT) .................................... 583
Canadian Studies ....................................................................................... 146
Centre for African Studies ......................................................................... 583
Centre for Comparative Genomics and Evolutionary Bioinformatics ........ 583
Centre for Environmental and Marine Geology ......................................... 583
Centre for European Studies ..................................................................... 584
Centre for Foreign Policy Studies ............................................................... 584
Centre for Innovation in Infrastructure ...................................................... 14
Centre for Learning and Teaching .............................................................. 582
Centre for Marine Vessel Development and Research (CMVDR) ............ 584
Centre for Risk Management, Faculty of Management ............................. 587
Centre for Water Resources ..................................................................... 584
Centres and Institutes
Canadian Residential Energy End-Use Data and Analysis Centre (CREE DAC) ................................................................. 583
Centre for African Studies ......................................................................... 583
Centre for Environmental and Marine Geology ......................................... 583
Centre for European Studies ..................................................................... 584
Centre for Foreign Policy Studies ............................................................... 584
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty of Agriculture</td>
<td>50</td>
</tr>
<tr>
<td>Bachelor of Agriculture</td>
<td>61</td>
</tr>
<tr>
<td>Canadian Association of Diploma in Agriculture Programs</td>
<td>57</td>
</tr>
<tr>
<td>Certificate in Technology Education</td>
<td>57</td>
</tr>
<tr>
<td>Certificate of Specialization in Organic Agriculture</td>
<td>57</td>
</tr>
<tr>
<td>Continuing and Distance Education</td>
<td>61</td>
</tr>
<tr>
<td>Dairy Farming</td>
<td>58</td>
</tr>
<tr>
<td>Diploma in Engineering</td>
<td>54</td>
</tr>
<tr>
<td>Diploma in Technology - Business Management</td>
<td>58</td>
</tr>
<tr>
<td>Diploma in Technology Managed Landscapes</td>
<td>60</td>
</tr>
<tr>
<td>Diploma in Technology Plant Science</td>
<td>60</td>
</tr>
<tr>
<td>Diploma in Technology Veterinary Technology</td>
<td>41</td>
</tr>
<tr>
<td>Equine Studies</td>
<td>59</td>
</tr>
<tr>
<td>Greenhouse and Nursery</td>
<td>59</td>
</tr>
<tr>
<td>Pet Specialty</td>
<td>59</td>
</tr>
<tr>
<td>Professional Organizations for Agrologists</td>
<td>62</td>
</tr>
<tr>
<td>Fees</td>
<td>595</td>
</tr>
<tr>
<td>Academic Fees</td>
<td>596</td>
</tr>
<tr>
<td>Additional Student Fees</td>
<td>597</td>
</tr>
<tr>
<td>Admission Deposit</td>
<td>595</td>
</tr>
<tr>
<td>Audit Classes</td>
<td>595</td>
</tr>
<tr>
<td>Bursaries</td>
<td>598</td>
</tr>
<tr>
<td>Class Changes</td>
<td>596</td>
</tr>
<tr>
<td>Delinquent Accounts</td>
<td>598</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>597</td>
</tr>
<tr>
<td>Identification Cards (DalCard)</td>
<td>595</td>
</tr>
<tr>
<td>Income Tax Credit</td>
<td>598</td>
</tr>
<tr>
<td>International Students</td>
<td>597</td>
</tr>
<tr>
<td>Differential Fee</td>
<td>597</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>597</td>
</tr>
<tr>
<td>Laboratory Deposits</td>
<td>597</td>
</tr>
<tr>
<td>Late Registration</td>
<td>596</td>
</tr>
<tr>
<td>Payment</td>
<td>597</td>
</tr>
<tr>
<td>Refunds</td>
<td>596</td>
</tr>
<tr>
<td>Registration</td>
<td>595</td>
</tr>
<tr>
<td>Regulations</td>
<td>595</td>
</tr>
<tr>
<td>Residence Fees</td>
<td>598</td>
</tr>
<tr>
<td>Scholarships</td>
<td>599</td>
</tr>
<tr>
<td>Statements and Monthly Notices</td>
<td>598</td>
</tr>
<tr>
<td>Student Loans</td>
<td>598</td>
</tr>
<tr>
<td>Student Service Fee</td>
<td>597</td>
</tr>
<tr>
<td>Student Union Fee Distribution</td>
<td>597</td>
</tr>
<tr>
<td>Tuition Fees</td>
<td>596</td>
</tr>
<tr>
<td>Withdraws</td>
<td>596</td>
</tr>
<tr>
<td>Fieldwork, definition</td>
<td>3</td>
</tr>
<tr>
<td>Film Studies</td>
<td>190</td>
</tr>
<tr>
<td>Financial Aid and Loans</td>
<td>659</td>
</tr>
<tr>
<td>Food Science</td>
<td>83, 338, 359</td>
</tr>
<tr>
<td>Food Science, classes</td>
<td>377</td>
</tr>
<tr>
<td>Food Science, Minor in</td>
<td>134, 373</td>
</tr>
<tr>
<td>Foreign Policy Studies, Centre for</td>
<td>584</td>
</tr>
<tr>
<td>Freedom of Information and Protection of Privacy</td>
<td>21</td>
</tr>
<tr>
<td>French</td>
<td>83, 212</td>
</tr>
<tr>
<td>Full-time Students, definition</td>
<td>3</td>
</tr>
<tr>
<td>Gender and Women’s Studies</td>
<td>220</td>
</tr>
<tr>
<td>Genetics</td>
<td>84</td>
</tr>
<tr>
<td>Geography</td>
<td>85, 515</td>
</tr>
<tr>
<td>Geology</td>
<td>85</td>
</tr>
<tr>
<td>Geology, see Earth Sciences</td>
<td>492</td>
</tr>
<tr>
<td>German</td>
<td>230</td>
</tr>
<tr>
<td>Global Health Office</td>
<td>585</td>
</tr>
<tr>
<td>Good Standing</td>
<td>3, 38</td>
</tr>
<tr>
<td>Governor General’s Silver Medal</td>
<td>624</td>
</tr>
<tr>
<td>GPA (Grade Point Average)</td>
<td>38</td>
</tr>
<tr>
<td>Greek, see Classics</td>
<td>152</td>
</tr>
<tr>
<td>Health and Human Performance</td>
<td>386</td>
</tr>
<tr>
<td>Health Law Institute</td>
<td>385</td>
</tr>
<tr>
<td>Health Professions, Faculty of</td>
<td>380</td>
</tr>
<tr>
<td>Suspension or Dismissal from a Program on the Grounds of Professional Unsuitability</td>
<td>30</td>
</tr>
<tr>
<td>Health Promotion</td>
<td>388</td>
</tr>
<tr>
<td>Health Sciences</td>
<td>400</td>
</tr>
<tr>
<td>Health Services Administration</td>
<td>383</td>
</tr>
<tr>
<td>Health Services, University</td>
<td>594</td>
</tr>
<tr>
<td>Health Studies, Minor in</td>
<td>135</td>
</tr>
<tr>
<td>History</td>
<td>86, 236</td>
</tr>
<tr>
<td>History of Science and Technology</td>
<td>254</td>
</tr>
<tr>
<td>Horticulture</td>
<td>86</td>
</tr>
<tr>
<td>Housing</td>
<td>590</td>
</tr>
<tr>
<td>Humanistic Studies in Science</td>
<td>519</td>
</tr>
<tr>
<td>Identification Card Fees</td>
<td>595</td>
</tr>
<tr>
<td>Identification Cards (DalCard)</td>
<td>595</td>
</tr>
<tr>
<td>Immunology</td>
<td>338</td>
</tr>
<tr>
<td>Industrial Engineering</td>
<td>359</td>
</tr>
<tr>
<td>Industrial Engineering Entrance Scholarship</td>
<td>617</td>
</tr>
<tr>
<td>Informatics</td>
<td>334</td>
</tr>
<tr>
<td>Informatics, Bachelor of</td>
<td>592</td>
</tr>
<tr>
<td>Information Technology Services</td>
<td>592</td>
</tr>
<tr>
<td>Integrated Science Program</td>
<td>592</td>
</tr>
<tr>
<td>Intellectual Honesty</td>
<td>23</td>
</tr>
<tr>
<td>International and Exchange Students</td>
<td>11</td>
</tr>
<tr>
<td>International Baccalaureate and Advanced Placement Classes</td>
<td>11</td>
</tr>
<tr>
<td>International Business Studies, Centre for</td>
<td>584</td>
</tr>
<tr>
<td>International Centre</td>
<td>592</td>
</tr>
<tr>
<td>International Development</td>
<td>89</td>
</tr>
<tr>
<td>International Development Studies</td>
<td>260</td>
</tr>
<tr>
<td>International Food Business</td>
<td>90</td>
</tr>
<tr>
<td>International Student &amp; Exchange Services</td>
<td>952</td>
</tr>
<tr>
<td>Internship</td>
<td>90</td>
</tr>
<tr>
<td>Internship, Fieldwork, Clinical Practice, Externship, Practicum, Clerkship, definitions</td>
<td>3</td>
</tr>
<tr>
<td>Italian Studies</td>
<td>268</td>
</tr>
<tr>
<td>Journalism Studies</td>
<td>270</td>
</tr>
<tr>
<td>Journalism Studies, Minor in</td>
<td>136</td>
</tr>
<tr>
<td>K</td>
<td>391</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>391</td>
</tr>
<tr>
<td>Laboratory Deposits</td>
<td>597</td>
</tr>
<tr>
<td>Language Training</td>
<td>13</td>
</tr>
<tr>
<td>Latin, see Classics</td>
<td>152</td>
</tr>
</tbody>
</table>
Law & Society, Minor in .................................................. 136
Law and Technology Institute ........................................... 586
Learning and Teaching, Centre for .................................. 588
Leisure Studies .................................................................. 395
Letter of Permission ......................................................... 4, 54
Grade Points ..................................................................... 38
Libraries ............................................................................ 592
Linguistics ......................................................................... 273
Loans, Temporary ............................................................... 640

M
Management ..................................................................... 91, 451
Management, Faculty of ................................................... 440
Marine and Environmental Law Institute ............................ 586
Marine Biology .................................................................. 521
Materials Engineering ...................................................... 363
Mathematics ..................................................................... 94, 528
Mature Students, definition ............................................. 11–12
Mature Students, Programs and Services ......................... 42
Mechanical Engineering .................................................... 364
Medical Laboratory Technology ......................................... 400
Medicine, Faculty of
General Information .......................................................... 460
Mission Statement ............................................................. 460
Meteorology, Diploma in .................................................. 561
Microbiology ..................................................................... 95
Microbiology and Immunology .......................................... 558
Minerals Engineering Centre ............................................ 587
Mining and Metallurgical Engineering .............................. 369
Minor in
Abrahamic Religions .......................................................... 129
Agricultural Business ......................................................... 55
Agricultural Chemistry ...................................................... 55
Agricultural Economics ..................................................... 56
Animal Science .................................................................. 56
Animal Welfare .................................................................. 56
Aquaculture ...................................................................... 56
Community Design ............................................................ 132
Computer Science ............................................................. 132
Environment, Sustainability and Society ......................... 45
Environmental Sciences ................................................... 56
Environmental Studies ....................................................... 118, 134, 185
Film Studies ....................................................................... 190
Food Science ..................................................................... 134
Genetics & Molecular Biology .......................................... 56
Health Studies .................................................................... 235
History .............................................................................. 237
Journalism Studies ............................................................ 136, 270
Law and Society ................................................................. 136, 272
Management .................................................................... 136
Mathematics ..................................................................... 56
Pest Management ............................................................. 56
Plant Science ..................................................................... 57
Music ................................................................................ 192

N
Native Post-Secondary Education Counselling Unit ............. 593
Neuroscience .................................................................... 542
Neuroscience Institute ...................................................... 587
Newman Newman Centre for Entrepreneurship .................. 587
Nuclear Magnetic Resonance Research Resource (NMR3) .... 582, 587

Nuclear Medicine Technology ............................................. 400, 402
Nursing (Arctic Nursing) .................................................... 420
Nursing, School of ............................................................. 418
Nutrition ............................................................................ 95

O
Occupational Therapy, School of ...................................... 426
Ocean Sciences ................................................................. 550
Oceanography ................................................................. 351
Office of Human Rights, Equity & Harassment Prevention .... 593
Office of the Ombudsperson ............................................. 593

P
Part-time Students ............................................................. 34
Part-time Students, definition ........................................... 4
Pharmacology .................................................................... 462
Pharmacy .......................................................................... 428
Philosophy ......................................................................... 96, 275
Physics .............................................................................. 96
Physics and Atmospheric Science ...................................... 558
Physiology and Biophysics ................................................ 463
Plagiarism ......................................................................... 23
Plant Science ...................................................................... 98
Political Science ............................................................... 97, 282
Practicum, definition ......................................................... 4
Prerequisite, definition ...................................................... 4
Prizes, Medals, and Awards .............................................. 622
Probation Regulations ........................................................ 38
Probation, definition .......................................................... 4
Process Engineering and Applied Science ......................... 369
Protection of Property ....................................................... 29
Psychology ........................................................................ 565, 567

R
Radiological Technology .................................................. 400–401, 403
RBC Centre for Risk Management, Faculty of Management .... 387
Recreation ......................................................................... 395
Refund Schedule ............................................................... 598
Registrar’s Office .............................................................. 593
Registration ....................................................................... 34

Regulations
Academic ........................................................................... 32
Code Of Conduct .............................................................. 27
Discipline .......................................................................... 24
Examination Regulations ................................................. 21
Freedom of Information and Protection of Privacy .............. 21
Intellectual Honesty ........................................................... 23
Plagiarism ......................................................................... 23
Release of Information ...................................................... 21
Retention of Student Work ............................................... 21
University .......................................................................... 20
Release of Information ...................................................... 21
Repeating Classes ............................................................ 38
Reincision of Acceptance into a Program ............................ 20
Research in Materials (IRM), Institute for .......................... 586
Research Methods/Project Seminars .................................. 99
Residence Fees ................................................................... 598
Residences ......................................................................... 910
Resources and Services .................................................... 588
Alumni Association ......................................................... 588
Athletics and Recreational Services .................................. 588
Black Students Advising Centre (BSAC) .............................. 588

Index 651
Career Services Centre .......................................................... 588
Centre for Learning and Teaching .......................................................... 588
Counselling Services ............................................................................. 589
DalCard .......................................................................................... 589
Dalhousie Arts Centre ..................................................................... 589
Dalhousie Multifacility Centre .......................................................... 590
Dalhousie Student Union .................................................................. 590
Housing/Residence Services .............................................................. 590
Information Technology Services (ITS) .............................................. 592
International Student & Exchange Services ........................................ 592
Libraries .......................................................................................... 592
Office of Human Rights, Equity & Harassment Prevention ... 593
Office of the Ombudsperson .............................................................. 593
Registrar’s Office .............................................................................. 593
Student Accommodation Office (SAO) .......................................... 593
Student Advocacy Service .............................................................. 593
Student Clubs and Organizations .................................................... 593
Student Services ............................................................................. 594
The Office of Student Accessibility & Accommodation (OSAA) ... 593
University Bookstore .................................................................... 594
University Computing and Information Services ...................... 592
University Health Services .............................................................. 594
University Secretariat ..................................................................... 594
Writing Centre .................................................................................. 594
Respiratory Therapy .......................................................................... 400–401, 403
Rural Studies .................................................................................. 100
Russian Studies .................................................................................. 301
S
Scholarship GPA ............................................................................. 4
Scholarships .................................................................................. 400, 407
Science & Technology, History of .................................................... 254
Science Co-op .................................................................................. 490
Science, Faculty of .......................................................................... 465
Integrated Science Program .............................................................. 519
Science, Interdisciplinary Class ......................................................... 577
Smoke Free/Scents Free Policy ......................................................... 1
Social Work, School of .................................................................... 455
Sociology .......................................................................................... 100
Sociology and Social Anthropology .................................................. 306
Software Engineering ..................................................................... 369
Soils ............................................................................................... 101
South House ...................................................................................... 593
Spanish ............................................................................................. 102
Spanish and Latin American Studies .......................................... 320
Special Students, definition ............................................................... 4
Special Topics ..................................................................................... 102
Statistics .......................................................................................... 105, 578
Student Advocacy Service .............................................................. 593
Student Clubs and Organizations .................................................... 593
Student Exchange Programs .......................................................... 444
Student Loans .................................................................................. 639
Student Services ............................................................................. 594
Student Union .................................................................................. 590
Fee Distribution ................................................................................ 597
Study Abroad .................................................................................... 142
Subject Codes .................................................................................. 5
Summer School .................................................................................. 55
Supplemental Examinations ............................................................ 57

T
Tax Credit ......................................................................................... 588
Fees ................................................................................................. 598
Theatre ............................................................................................. 285
Trace Analysis Research Centre ......................................................... 587
Transcript, definition ........................................................................ 4
Transfer Student, definition ............................................................. 4
Transfer Students ............................................................................. 34

U
Undergraduates ............................................................................... 4
University Exploration Program ......................................................... 42
University Health Services .............................................................. 594
University Regulations ..................................................................... 20
University Secretariat ...................................................................... 594
University Silver Medal .................................................................... 624

V
Vehicle Safety Research Team ......................................................... 587
Veterinary Technology ...................................................................... 164
Visiting Student, definition ............................................................... 4

W
Water Resources Studies, Centre for .............................................. 584
Withdrawal ........................................................................................ 33
Women’s Studies, see Gender and Women’s Studies ................. 220
Workload ........................................................................................... 32
Writing Centre .................................................................................. 594
Writing Intensive, definition ............................................................. 4

Index

652

652 Index
Awards Index

Numerics

3M Canada Bursary .................................................................647
54th Avenue Capital Corporation Bursary ..............................602

A
Aber, Alyssia D. Aber Memorial Bursary ..................................647
Acadian Lines Limited Scholarship .........................................620
Addresses of Provincial Student Aid Authorities ......................639
Adolphson Award in the Aesthetics of Structures .......................629
Ahuja, Hira and Kamal Ahuja Engineering Scholarship ...............616
Atkinson, James H., Award .....................................................628
Alan Pollock Scholarship, The ...............................................621
Atlantic Farm Mechanization Show Scholarship .......................613
Alison Mines Bursary ...............................................................602
Aldous Prize ............................................................................656
Aliant Ambassador Scholarship ...............................................613, 616
Alumni Association Medal ......................................................622
Animal Nutrition Association of Canada (Atlantic Division)
Bursary ....................................................................................608
Anonymous Economics Prize ..................................................637
Armark Leadership Award ....................................................607
Arbing, J. D. (Dan) Arbing Memorial Nova Scotia Road Builders
Association Bursary .................................................................644
Archibald, Dorothy Archibald Award .......................................631
Archibald, Dorothy Bursaries ..................................................646
Archibald, Dr. William J., Prize in Physics .................................638
Archibald, Helen Archibald Memorial Bursary .........................640
Archibald, Margaret, Memorial (Entrance) Bursary ....................644
Arts ..........................................................................................625
Architecture and Planning Bursaries ........................................643
Armstrong, Ralph H. Armstrong Memorial Award .....................608
Ashfield, Suddy and Barbara Bul Ashfield Bursary ......................602
Ashkins, Eve and David Memorial Bursary ...............................640
Ashkins, Nathan T. Ashkins Scholarship ...................................614
Athletic Awards .......................................................................623
MacEwan Scholarships ............................................................623
MacRae Scholarships ...............................................................623
The Graham Family Athletic Awards .......................................623
Atkins, Helen Mary and Earl Atkins Memorial Bursary ...............640
Atlantic Barber Shop Harmony Award ......................................627
Atlantic Farm Mechanization Show (Entrance) Scholarship ..........616
Atlantic Farm Mechanization Show Award ................................629
Atlantic Farm Mechanization Show Environmental Engineering ....616
Atlantic Land Improvement Contractors Association Award ....613, 629
Atlantic Poultry Conference Award .......................................608
Atlantic Scholars Awards (tuition and residence fees) .................606
Atlantic World History Scholarship, The ................................614
Aventis, Sanofi, Scholarship ....................................................620
Avery Prize ...............................................................................624
Award Duration .......................................................................600
Ayer, Matthew Ayer Award for Community Nursing ..................652

B
B’hai B’rift Prize .....................................................................636
Babineau, Paul Babineau Memorial Scholarship .......................611
Bachelor of Environmental Design Studies Year 4 Portfolio Prize 625
Bachelor of Environmental Design Studies Year Three
Portfolio Prize ........................................................................625
Bacon, Dr. Roger S. Bacon Scholarship in Agriculture .................625
Bailey, Doug Bailey Memorial Scholarship ...............................608
Baker, Dr. Max L., Scholarship ................................................616
Ball Scholarship, Margorie ......................................................607
Banks, A. B. Banks Memorial Scholarship .................................608
Barlow, David, Memorial Award ..............................................637
Barrett, John, Hamilton, Prize ................................................636
Barrett-Banks, Margaret Memorial Award ................................631
Beaton, Donnell and Betty Beaton Bursary ...............................640
Becton Dickinson Award of Excellence in Endocrine Studies .........633
Bell, Annie, L., Prize .................................................................623
Bell Entrance Scholarship in Science, Francis Hugh ..................602
Bell, Hugh, P., Scholarship in Biology .......................................621
Bennett, Avie, Prize .................................................................628
Berman, Wilfred, Memorial Prize .............................................635
Berman, Wilfred, Scholarship ..................................................620
Bernoulli Prize ........................................................................637
Bernstein, Harry and Kaye Bernstein Bursary .............................641
Bertram, Percy Bertram Jollota Scholarship ...............................617
Beta Sigma Phi Scholarship to Dalhousie University ..................607
Bevan, Allan and Lura, Memorial Scholarship ............................614
BHS Faculty Award ................................................................631
Bible Hill Garden Club Scholarship .........................................608
Biochemistry and Molecular Biology .......................................635
Biography ...............................................................................621, 636
Bisset, Scholarship ..................................................................602
Black and Gold Awards ............................................................623
Blackmore Award ....................................................................628
Blair, A. David, Scholarship ....................................................616
Blanchard, J. Ewart Blanchard Memorial Scholarship .................622
Blanchard, John Blanchard Scholarship ....................................607
Blam, Dr. Emil and Mrs. Stella, Prize in Mathematics ..................637
Boone/Geoffrey Memorial String Scholarship ..........................615
Boyd, George, Bursary ............................................................641
Brady, The Marj Brady Bursary ................................................647
Bredin, Jeff Bredin Memorial Scholarship in Men’s Volleyball .......623
Brochu, Ernst, Memorial Bursaries ..........................................641
Brewer, Lt. (E) Harry J., BMBE, CD, RCN (Ret.), Memorial
Bursary ....................................................................................641
Brier Memorial Scholarship in Psychology ..............................641
Brown, David W. Brown Memorial Scholarship .......................608
Brown, Israel, Scholarship .......................................................607
Bruce, John G. Bruce Scholarship ..........................................616
Bruce, Robert, Bursaries .........................................................643
Bruce, Robert, Scholarships ....................................................605, 614
Bubari, Dr. John Bubari Scholarship ........................................608
Buckley, G. R. Buckley Community Pharmacy Award ...............633
Burbridge, Dean George A., Memorial Award ............................633
Burbridge, Memrie F., Scholarships .........................................607
Burges McKittrick Prizes in Physics .........................................638
Burges McKittrick Summer Research Studentships in Physics ....602, 641
Burns, George, Scholarship and Grant ........................................639
Buszard, Deborah Buszard Bursary .........................................647
Buszard, Deborah Buszard Prize ..............................................639
Battenshaw, Katherine M., Prize ..................................................637
Bett, Professor Ray, Dr. Memorial Prize in Piano Studies ..................627
Byron, Ada, Award ......................................................................629

C
Call, Merle Call Memorial Scholarship .........................................608
Caldwell, Vera Caldwell Memorial Bursary ....................................608
Cameron, Ali Cameron Memorial Award ........................................652
Cameron, Dr. Alan E., Scholarship ................................................616
Camp of 1930 Award Fund ...........................................................629
Campbell, George H., Memorial Scholarship .................................607
Campbell, James and Abbie, Scholarships ....................................605
Campbell, James and Abbie, Prize, Campbell Incentive Award .....627
Campbell, Malcolm and Aileen Campbell Bursary in Pharmacy ..645
Canada Student Loan for Part-Time Students ................................647
Canadian Agricultural Economics Association Prize .......................624
Canadian Institute of Mining and Metallurgy Earth Science Scholarship for New Brunswick Students ....622
Canadian Society for Chemical Engineering Medal ......................629
Canadian Society for Chemistry Silver Medal ..............................636
Canadian Society for Civil Engineering Certificate .........................629
Canadian Society for Exercise Physiology .....................................631
Canadian Society of Animal Science Prize ....................................613, 624
Canadian Society of Exploration Geophysicists Scholarship ........622
Canadian Society of Mechanical Engineering Medal ....................629
Canadian Society of Petroleum Geologists Award .......................637
Canadian Society of Petroleum Geologists Student Industry Field Trip 637
Canadian Studies ........................................................................625
Canard Conservation Undergraduate Scholarship .........................609
Capital Health Award for Professional Practice in Nursing ............652
Card, James Card Memorial Bursaries ..........................................609
Carey, Randy Carey Memorial Scholarship ....................................609
Carr, Ron Award ..........................................................................658
Carroll, Doreen, Bursary in Cancer Nursing .....................................646
Carstairs-Arnell, John, Prize .......................................................656
Cassidy, Alice and Louis Cassidy Award ........................................645
CBI Limited, Consulting Engineers’ Scholarship .............................616
Chamber of Mineral Resources of Nova Scotia Scholarship ...........622
Chandler, R. Frank, Award ............................................................653
Chapman, Mark, Fund .................................................................601
Charles M. Collins Memorial Scholarship .......................................613
Chemistry ..................................................................................622, 626
Chemistry Achievement Award ....................................................636
Chew, The Vincent Chew Memorial Endowment ............................620
Chew, Vincent Chew Memorial Award ..........................................631, 635
Chicken Producers of Nova Scotia Award .....................................609
Chittick, Barbara Bennett, Prize ...................................................626
Chute, Walter J., Prize, Chemistry ................................................636
Citizenship Award ........................................................................629
Clan Ramsay of Nova Scotia Prize ................................................625
Clark, Donald E. Clark Memorial Scholarship ..................................613
Clarke, Enid Hager, textbook Fund ................................................641
Clarke, Howard C., International Study Award ...............................641
Class of ’85 Award Fund ................................................................629
Classics ......................................................................................625
Clayden, F.R., Prize .....................................................................633
Clothier, Peter, Fund .................................................................609
Cobequid Dog Club Scholarship ..................................................624
Coffey, Sylvia Coffey Memorial Award ...........................................628
Coll, Colonel Charles Coll Memorial Scholarship ..........................613
College of Pharmacists Dr. J. G. Duff Award ..................................633
College of Pharmacy .....................................................................628, 645
College of Sustainability ...............................................................622, 639
Collins, Ian Memorial Pediatric Award ..........................................631
Collins, The Bert and Betty Collins Bursary ....................................645
Composites ..................................................................................635
Commonwealth Alumni Association Awards ....................................635
Commonwealth History Prize ......................................................626
Commonwealth Political Philosophy Prize ....................................628
Community Design Achievement Award (second year) ................625
Community Design Achievement Award (third year) ....................625
Community Design Service Prize ................................................625
Community Design Thesis Prize ...................................................625
Consulting Engineers of Nova Scotia Scholarships .......................617
Contemporary Studies ................................................................625
Convocation Awards ...................................................................624
Cook, George & Lottie Cook Memorial Scholarship .........................609
Cooke, Art and Dorothy Cooke Memorial Scholarship .....................622
Cook, Dean J. Emond Cooke Award ..............................................633
Co-op Atlantic Scholarships ........................................................609
Cooper, Walter P., Memorial Prize ................................................630
Costume Studies Scholarship ........................................................615
Couto, Jean Couto Bursaries ........................................................645
Covill, Renee Covill Scholarships ................................................609
Cow, Dorothy Creelman Cox Memorial Scholarship .......................609
Cox, Dr. Kenneth Cox Memorial Scholarship ................................609
CPSA Centennial Award (External, Pharmacists) .........................634
CRC Freshman Achievement Award ............................................636
Creative Writing .........................................................................625
Crichton, Graham, Prize in English ..............................................626
Crowe, Bela Crowe Scholarship ....................................................622
Cummins, Dorothy Macdonald Cummins Memorial Scholarship ....618
Cumming, Leamore Smith, Bursary ..............................................622
Cunning, R. Stanley Cumming Scholarship ....................................602
Currie, Honourable L.D., Memorial Scholarship in Music ...............615

D
Daily Farmers of Nova Scotia Award ..............................................609
Dale, Dale, Pharmacy Award for Excellence ...................................633
Dalhousie Agricultural Students’ Association (DASSA) Scholarships ..........609
Dalhousie Alumni Association (Women’s Division) Medal in Music ....640
Dalhousie Alumni Leadership Scholarships .....................................602
Dalhousie Bursaries .....................................................................640
Dalhousie Club of New York Scholarships .....................................605, 614
Dalhousie Memorial Bursary Fund ................................................641
Dalhousie Student Union Student Accessibility Award .....................623
Dalhousie Temporary Loans ........................................................647
Dalhousie University Undergraduate Bursaries .............................647
Dalhousie University Women Alumnae Medal ..................................635
Dalhousie Women’s Alumnae Prize ..............................................640
Davis, Frank R. Davis Memorial Scholarships ................................641
Davis, Frank R. Davis Memorial Scholarships ...............................606
Davis, Warren, Prize in Music ......................................................627
Dawson, Audrey-Lea, Memorial Bursary ........................................645
De Carteret Memorial Prize ........................................................628
de Gouw, K. de Gouw Memorial Prize for Plant Science ..................624
Awards Index 655

Dean's List Award ..................................................629
Dean's Scholarship (international and residence fees) ...............606
Dennis, Eric, Gold Medal .............................................628
Dennis, Honourable W.H., Memorial Prizes for Literary Compositions in English .............................................623
Department of Spanish and Latin American Studies Citizenship Award ..................................................628
Department of Theatre Awards Fund ................................628
dePaul, Sister Frances, Award ........................................653
Design and Construction Institute Engineering and Architecture Scholarship ..................................................617
Developmental Biology Prize ........................................636
DeWolfe, L.A., Memorial Scholarship ................................621
Dharma Master Chak Mor Memorial Scholarship .....................607
Dickson, Robert C., Memorial Award ..................................653
Diploma in Meteorology Prize ........................................658
Doune, Dr. H.W.L., F.E.I.C. Scholarship ...............................617
Dolphin, Peter, Memorial Prize in Biochemistry .......................635
Don Palffy Award ................................................................611
Dougall, David Andrew, Memorial Bursary ............................647
Douglas, G.V., Memorial Prize in Earth Sciences ...............657
Southwale, Charles Robert Raefle, Memorial Bursary ..........641
DRA X I MAG E Award ..................................................651
DSU Accessibility Bursary ..............................................602
DSU Student Wise Health Plan Bursary ...............................641
Duff, J.G., Pharmacy Award ............................................633
Duncan, Joseph Duncan Stewart Scholarships .........................608
Dunlop, John, Memorial Bursary ........................................641
Dunn, Ken, Memorial Prize ..............................................638
Dupuis, Shawn Dupuis Memorial Prize ................................623
Durward, David, Memorial Prize .......................................636
Environmental Science Thesis Prize ....................................637
Eric & Ryan Post-Pharmacy Leadership Award .......................634
Eric Williams Memorial Scholarships ................................612
ESS Academic Improvement Prize ....................................639
ESS First-year Prize .....................................................639
ESS Honours Society ....................................................639
ESS Second-year Prize ..................................................639
ESS Student Travel Award .............................................639
ESS SUST-star Prize .....................................................639
ESS Thesis Prize ...........................................................639
Etta PHY S 0 05 0 Prize ....................................................624
European Studies ......................................................626
European Union Centre of Excellence (EUCE) Prize .................628
Evanik Radio Group Scholarship ......................................602
F
Facilities Management Employee Scholarship ........................602
Faculty of Agriculture ....................................................606
Faculty of Agriculture Alumni Family Scholarships .................609
Faculty of Agriculture Athletic Bursaries ..............................609
Faculty of Agriculture Bursaries .......................................609
Faculty of Architecture and Planning ...................................613, 625, 643
Faculty of Arts & Social Sciences .......................................625, 643
Faculty of Arts and Social Sciences .....................................614
Faculty of Computer Science ...........................................615, 629, 644
Faculty of Engineering ....................................................629, 644
Faculty of Engineering Scholarships ....................................617
Faculty of Health Professions ..........................................620, 630, 645
Faculty of Management ...................................................620, 635, 646
Faculty of Science .........................................................621, 635, 647
Fairy Canada Scholarship ................................................617
Fairfax Financial Holdings Limited Entrance Award .................617
Fall River Garden Club Bursary ........................................609
Fanning, David F., Scholarship ..........................................617
Faraday, James A. Fandy Memorial Music Award ....................627
Farm Credit Canada Business Planning Awards ......................624
Farm Credit Canada Scholarship .......................................612
Farm Focus Scholarship ..................................................609
Faulkner, Ross, Scholarships ............................................605
Fawcett, Barry Ward, Memorial Prize ..................................638
Faye Sobey Undergraduate Research Award .........................621
Fenton, Eva Fenton Memorial Scholarship .............................609
Financial Aid and Loans ................................................639
Government Student Loans .............................................639
Temporary Loans .........................................................640
First Nations & Indigenous Black Students Scholarships ............602
Flynn, Dean Flynn Memorial Prize .....................................630
Flyshcer, Clare Murray, Poetry Prize ..................................623
Foran, M. Roy Foran Scholarship .......................................617
Forysth Family Nova Scotia Undergraduate Scholarship ........602
Forward, Susan Paula Forward Memorial Prize in Psychology ....638
Fountain, Frederick S., Scholarship ....................................605
Fountain, Marjorie Manning Scholarship ...............................603
Foy, Elizabeth Foy Bursary ..............................................645
Frandsen, Helen C. McDowell Frandsen Memorial Scholarship ....603
Fraser, H. J. Fraser Manning Memorial Prize for English ............612, 624
Fraser, Hugh Graeme Fraser Memorial Prize in Advanced Chemistry ..................................................636
Fraser, R.C. Fraser Family Scholarship ..................................603
Frazier, Rowland C. Frazier Scholarships in Business Administration ..................................................603
<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>French Department Scholarship</td>
<td>614</td>
</tr>
<tr>
<td>French</td>
<td>626</td>
</tr>
<tr>
<td>Friars, Dr. Gerry W. Friars Undergraduate Research Prize</td>
<td>624</td>
</tr>
<tr>
<td>Frost, Charles E., Award</td>
<td>653</td>
</tr>
<tr>
<td>Full Class Load</td>
<td>690</td>
</tr>
<tr>
<td>G</td>
<td></td>
</tr>
<tr>
<td>Gale, Beverly Milligan Gale Memorial Scholarship</td>
<td>609</td>
</tr>
<tr>
<td>Galloway, SLT Bruce, Memorial Prize</td>
<td>623</td>
</tr>
<tr>
<td>Gardner, The Walter Gardner Stanford Entrance Scholarships</td>
<td>616</td>
</tr>
<tr>
<td>Gareau, Marc G, P. Eng. Scholarships</td>
<td>617</td>
</tr>
<tr>
<td>Gates, Wade, Memorial Bursary</td>
<td>644</td>
</tr>
<tr>
<td>Gaudet, Dr. Frederic J., Scholarship</td>
<td>614</td>
</tr>
<tr>
<td>Gender and Women's Studies</td>
<td>626</td>
</tr>
<tr>
<td>General</td>
<td>622</td>
</tr>
<tr>
<td>General Dynamics Canada Corporate Partners Scholarship</td>
<td>603</td>
</tr>
<tr>
<td>General Policy</td>
<td>600</td>
</tr>
<tr>
<td>Geoffroy, The George Geoffroy Myerhof Scholarship</td>
<td>618</td>
</tr>
<tr>
<td>Geological Association of Canada Student Prize</td>
<td>637</td>
</tr>
<tr>
<td>George Boyd Bursary</td>
<td>641</td>
</tr>
<tr>
<td>Germany</td>
<td>626</td>
</tr>
<tr>
<td>Gibson, Stewart Lockie, Memorial Prize</td>
<td>635</td>
</tr>
<tr>
<td>Gibson, Stewart, Lockie, Scholarship in Commerce</td>
<td>620</td>
</tr>
<tr>
<td>Ginley, Vince Ginley Scholarships</td>
<td>622</td>
</tr>
<tr>
<td>Glovin, The Irving and Jeanne, Award</td>
<td>623</td>
</tr>
<tr>
<td>Glube, Richard and Constance Glube Entrepreneurship Fellowship Fund</td>
<td>621</td>
</tr>
<tr>
<td>Gold, Silver and Bronze Awards</td>
<td>629</td>
</tr>
<tr>
<td>Goldblum, Dr. Ruth M. Goldblum Bursary</td>
<td>643</td>
</tr>
<tr>
<td>Goldblum, Dr. Ruth M., Bursary</td>
<td>644</td>
</tr>
<tr>
<td>Golden Key International Honour Society</td>
<td>607</td>
</tr>
<tr>
<td>Gonella, Elvira, Scholarship in Voice</td>
<td>614</td>
</tr>
<tr>
<td>Goodman, Edith and Rose, Prize in History</td>
<td>626</td>
</tr>
<tr>
<td>Government Notification</td>
<td>601</td>
</tr>
<tr>
<td>Governor General's Silver Medal</td>
<td>624</td>
</tr>
<tr>
<td>Governor General's Bronze Medal</td>
<td>624</td>
</tr>
<tr>
<td>Graduation and Scholarships</td>
<td>601</td>
</tr>
<tr>
<td>Graham, Alex, Memorial Award</td>
<td>636</td>
</tr>
<tr>
<td>Grant, Kevin Grant Memorial Scholarships</td>
<td>610</td>
</tr>
<tr>
<td>Grant, MacAllum S., Charitable Foundation Bursary</td>
<td>641</td>
</tr>
<tr>
<td>Green Diamond Equipment/John Deere Atlantic Agriculture Award</td>
<td>610</td>
</tr>
<tr>
<td>Green, Milton G. Green Memorial Scholarship</td>
<td>603</td>
</tr>
<tr>
<td>Guaranteed Entrance Scholarships</td>
<td>606</td>
</tr>
<tr>
<td>Guttell, Dr. E.W., Memorial Prize</td>
<td>638</td>
</tr>
<tr>
<td>H</td>
<td></td>
</tr>
<tr>
<td>Halifax Ladies Musical Club Scholarship</td>
<td>615</td>
</tr>
<tr>
<td>Hall, James L., Scholarship in Earth Sciences</td>
<td>617</td>
</tr>
<tr>
<td>Hamilton, Frances Hamilton Grant Bursaries</td>
<td>641</td>
</tr>
<tr>
<td>Hanna CHEM0050 Prize</td>
<td>624</td>
</tr>
<tr>
<td>Harper, W.L., Harper Scholarship</td>
<td>607</td>
</tr>
<tr>
<td>Harrison McCain Scholarships</td>
<td>606</td>
</tr>
<tr>
<td>Harrison, Amor M., Bursary</td>
<td>641</td>
</tr>
<tr>
<td>Havestock, Alice M., Bursary</td>
<td>641</td>
</tr>
<tr>
<td>Haviland, Bonnie R. Haviland Memorial Bursary</td>
<td>613</td>
</tr>
<tr>
<td>Hayes, Jennifer Hayes Starratt Scholarship</td>
<td>612</td>
</tr>
<tr>
<td>Hayes, Kenneth and Dorothy Hayes Memorial Prize</td>
<td>656</td>
</tr>
<tr>
<td>Hebb, Dr. Catherine Olding Hebb Memorial Bursary</td>
<td>647</td>
</tr>
<tr>
<td>Heighton, Ernest and Dorothy, Memorial Prize</td>
<td>627</td>
</tr>
<tr>
<td>Helpful Terms</td>
<td>600</td>
</tr>
<tr>
<td>Adjusted Average</td>
<td>680</td>
</tr>
<tr>
<td>Admissions Average</td>
<td>680</td>
</tr>
<tr>
<td>Faculty Groupings</td>
<td>680</td>
</tr>
<tr>
<td>Helvig, Ana Helvig Schulze Memorial Scholarship</td>
<td>612</td>
</tr>
<tr>
<td>Hertzman Prize</td>
<td>635</td>
</tr>
<tr>
<td>Hertzman, Owen Hertzman Prize</td>
<td>637</td>
</tr>
<tr>
<td>Hobbies, The Reverend J.B. Hobbies Memorial Prize</td>
<td>628</td>
</tr>
<tr>
<td>Hickman, Dr. Mary J. Hickman Memorial Scholarship</td>
<td>605</td>
</tr>
<tr>
<td>Hicks, Gary, Memorial Award</td>
<td>636</td>
</tr>
<tr>
<td>Higgins, John Higgins Memorial Scholarship</td>
<td>613</td>
</tr>
<tr>
<td>Highest Academic Achievement Certificate (Basic Degree Program &amp; Post RN Degree Program)</td>
<td>632</td>
</tr>
<tr>
<td>Hill, Allan Chaloner, Bursary</td>
<td>647</td>
</tr>
<tr>
<td>Hill, Annette M., Bursaries</td>
<td>641</td>
</tr>
<tr>
<td>Hill, R. J. Hill Bursary</td>
<td>643</td>
</tr>
<tr>
<td>Hills, Wilfred E., Bursary</td>
<td>643</td>
</tr>
<tr>
<td>Hills, Eric Stanley, Memorial Bursary</td>
<td>643</td>
</tr>
<tr>
<td>Hiram, Eva Mary and Hiram S. Fanquhar Bursary</td>
<td>646</td>
</tr>
<tr>
<td>History</td>
<td>614</td>
</tr>
<tr>
<td>History of Science and Technology</td>
<td>627</td>
</tr>
<tr>
<td>Holloway, Dr. James E. Holloway, Jr. Memorial Prize</td>
<td>628</td>
</tr>
<tr>
<td>Holton, Dr. Rosemary Holton &amp; Stephen A., Bursary</td>
<td>643</td>
</tr>
<tr>
<td>Honig, Dr. W.K., Prize in Psychology</td>
<td>638</td>
</tr>
<tr>
<td>Honours Student Prize</td>
<td>638</td>
</tr>
<tr>
<td>Howe, C.D., Scholarships in Engineering</td>
<td>603</td>
</tr>
<tr>
<td>Howitt, Mr. &amp; Mrs. D. D. Howitt Scholarship</td>
<td>607</td>
</tr>
<tr>
<td>Hubele, The David and Ruth Hubele Undergraduate Neuroscience Prize</td>
<td>638</td>
</tr>
<tr>
<td>Huber, Lome C. Huber Memorial Prize in Music</td>
<td>627</td>
</tr>
<tr>
<td>Hurdte, Denton Hurdle Scholarship</td>
<td>603</td>
</tr>
<tr>
<td>Hypercub Scholar Award</td>
<td>636</td>
</tr>
<tr>
<td>I</td>
<td></td>
</tr>
<tr>
<td>IB Scholarships</td>
<td>606</td>
</tr>
<tr>
<td>IEEE Medal</td>
<td>625</td>
</tr>
<tr>
<td>In-Course Scholarships</td>
<td>607</td>
</tr>
<tr>
<td>Industrial Engineering Entrance Scholarships</td>
<td>617</td>
</tr>
<tr>
<td>International Baccalaureate (IB) Scholarships</td>
<td>603</td>
</tr>
<tr>
<td>International Development Studies</td>
<td>627</td>
</tr>
<tr>
<td>International Exchanges</td>
<td>681</td>
</tr>
<tr>
<td>Irvine, Christine, Memorial Scholarship</td>
<td>605</td>
</tr>
<tr>
<td>Iogenish Chapter Silver Anniversary IODE Renewable Bursary</td>
<td>619</td>
</tr>
<tr>
<td>Italian Studies</td>
<td>627</td>
</tr>
<tr>
<td>IWK Health Centre Prize for Excellence in the Care of Children and Families</td>
<td>632</td>
</tr>
<tr>
<td>IWK Medical, Dental and Scientific Staff Award for Excellence in Children’s Nursing</td>
<td>632</td>
</tr>
<tr>
<td>IWK Medical, Dental and Scientific Staff Award for Excellence in Women’s and Newborn Nursing</td>
<td>632</td>
</tr>
<tr>
<td>J</td>
<td></td>
</tr>
<tr>
<td>Jacobson, Samuel S., Scholarship</td>
<td>621</td>
</tr>
<tr>
<td>Jebelie Prize for Preparatory Studies</td>
<td>624</td>
</tr>
<tr>
<td>Jeffrey, Ralph and Frances Lewis, Scholarship</td>
<td>622</td>
</tr>
<tr>
<td>Jenkins, Dr. Bill Jenkins Memorial Scholarship</td>
<td>612</td>
</tr>
<tr>
<td>Jenkins, Ralph H., Memorial Pharmacy Scholarship</td>
<td>620</td>
</tr>
<tr>
<td>Jenness, The Gilbert F. Jenness History Scholarship</td>
<td>615</td>
</tr>
<tr>
<td>JBMT Engineering Scholarship</td>
<td>617</td>
</tr>
<tr>
<td>Jodrey, John J. (Entrance) Bursary</td>
<td>644</td>
</tr>
<tr>
<td>Jodrey, John J., Scholarship</td>
<td>617</td>
</tr>
</tbody>
</table>
John .................................................. 634
John, Barry and Margo John Family Bursary .................. 643
Johnson, Phillip, Scholarship ............................................. 620
Johnson, Ted Bursary ......................................................... 638
Johnstone, Michael G., Memorial Entrance Bursary .......... 643–644
Jones, John, Scholarship .................................................... 615
Jordan, E., John, Scholarships ................................................ 605
K
Kaye, John R. Kaye Memorial Scholarship ......................... 618
Kearney, Geri Kearney Spirit of Pharmacy Award .............. 653
Keddy, Randy & Gladys Keddy Memorial Scholarship ........ 610
Keen, Michael J., Memorial Award ......................................... 637
Ketchum Manufacturing Company Limited Prize .............. 624
Kidd, Jack Kidd/ANC Bursary ............................................... 645
Kilimanjaro American Scholarship Fund ......................... 605, 607
Kilborn, William, Award ...................................................... 653
King, Laurier V. King Scholarship ......................................... 615
Kings Mutual Insurance Scholarships ................................. 610
Kinley, Honourable John J., Pharmacy Award .................. 633
Kitz, Harry, Fund ................................................................. 613
Kline, J. Douglas, Memorial Scholarship .............................. 618
Knodell, John Frederick, Engineering Scholarship ............. 618
Knop, Dr. Oswald, Prize in Chemistry ................................. 636
Knoules, Scott Knoules Memorial Pharmacy Award .......... 634
Knox, Matthew Knox Award .................................................. 651
Kolm, Havard Kolm Bursary .................................................. 644
Kostman Family Bursary ........................................................ 606
Kuhn, P. Max Kuhn Scholarship ............................................. 610

L
Lahey Summer Undergraduate Research Awards .................. 621
Landscape Nova Scotia Award ............................................... 613
Lavers, Ann, Howe Hall Bursary ......................................... 641
Lawsone, Sarah, M., Scholarships in Botany ....................... 622
Lawton Drugs Bursary ......................................................... 645
Leduc Legacy Award ........................................................... 629
LeBlanc, Kim Kilda, Memorial Award in Healing and the Arts . 624
Legaré, Randal, Memorial Humanitarian Award ................... 635
Leisure Research Congress Award ........................................... 651
Li, Dr. Ming Fang, Memorial Prize in Marine Biology .......... 636
Li, Samantha Li Award .......................................................... 626
Linguistics ................................................................. 627
Lister, Michael, Memorial Award ............................................. 630
Lockward Memorial Scholarships ......................................... 603
Longard, Annie E., Memorial Bursary ................................. 642
Louisbourg Investments Bursary ............................................ 646
Lund, Baxi & Madge Lund Scholarship in Business ............. 603
Lunenburg/Queens Federation of Agriculture Scholarship ... 610
Lyn Gratwick-Theatre Arts Guild Scholarship in Costume Studies 615
Mac
Macdonald, Charles F.H., Memorial Prize ......................... 650
MacDonald, George, Bursary ............................................... 645
MacDonald, J. Winston MacDonald Bursary ....................... 644
MacDonald, Robert and Katherine, Award ......................... 624
MacDougall, C. C. MacDougall Memorial Scholarship .......... 610
MacEachern-Pomfret Memorial Award ................................. 657
MacFadden, Donald, Memorial Scholarship ......................... 648
MacFarlane, Constance, Scholarship ..................................... 621
MacGregor, James Gordon Memorial Prizes ....................... 658
MacInnis, Lloyd, Memorial Bursary ....................................... 646
MacKay, A. Murray, Scholarship ........................................... 603
MacKay, D.C., Award in Money Management ....................... 635
MacKay, Dr. Allan and Barbara MacKay Scholarship ............ 625
MacKay, Dr. G. David, Scholarship ....................................... 618
MacKay, W. Andrew, Alumni Scholarship ............................. 608
Mackenzie Trust Scholarships .............................................. 608
MacKenzie, Annie S., Class of 1911 Bursary .......................... 643
MacKenzie, Col. I.D.B.F., Scholarship ................................. 620
MacKenzie, Dr. A. Stanley, Prizes in Physics ......................... 638
Mackenzie, Rev. Kenneth, Bursary ......................................... 642
Mackenzie, Tim Memorial Award .......................................... 631
MacKinnon, Elizabeth MacKinnon Lambie Award for Nutrition 632
MacKnight, Dr. Jessie L., Miss Mona W. Fleming Award in Hospital Pharmacy ............................................... 634
MacKnight, Dr. Jessie L., Scholarship ....................................... 620
Maclellan, Angus and Teno MacLellan Memorial Scholarship 610
MacLennan, Charles and Mary MacLennan Bursary in Music .. 643
MacLennan, Charles and Mary MacLennan Bursary in Theatre . 643
MacLeod, Nicholas M. MacLeod Memorial Scholarship ........ 608
MacLeod, The Sophie, Memorial Bursary ............................... 643
MacMechan, The Archibald MacMechan Chapter/SODE Scholarship in English ................................................ 614
MacMillan, Kilmer MacMillan Memorial Book Prize ............. 635
MacMillen, Frederick A., Scholarships ................................... 605
MacNab, Ian P., Prize ............................................................ 630
MacNeil, J. Bernard MacNeil Memorial Award ..................... 635
MacPhail, Paul R. MacPhail PEI Potato Industry Scholarship ... 610
MacRae, Dr. Herbert F. MacRae Memorial Dalhousie Faculty of Agriculture/Macdonald College Exchange Award ........... 610
Malhotra, Dr. S.K., Scholarship ................................................ 618
Management ................................................................. 635
Manexes Medication Delivery Bursary ................................. 646
Mapplebeck, Joseph E. Mapplebeck Memorial Bursaries ........ 610
Margison, Kenneth E., Award ............................................... 630
Margolin, Harry Margolin Scholarships in Commerce .......... 621
Marine Biology ................................................................. 622
Maritime and Northeast Pipeline Legacy Scholarship .......... 618
Maritime Hobbies and Crafts Bursary ................................. 643
Marshall, Helen Corson, Award in Pharmacy ....................... 647
Mathematics and Statistics Bursary Fund ............................ 647
Martin, Dr. Robert H. Prize .................................................... 631
Masontech Inc. - Bill Holland Civil Engineering Bursary ....... 618
Mathematics & Statistics ..................................................... 637
Matheson, Hannah, G., Bursaries .......................................... 646
Matheson, John David and Ellen Matheson Allen Endowment Fund ................................................................. 643
Mathesone, Neil and Jesse, Bursaries ...................................... 642
Mathewson, Bill Mathewson Memorial Award ....................... 610
Maticz, Heather Memorial Award ........................................... 632
Maxwell, Professor W. Russell, Memorial Scholarship ......... 647
Maxwell, Professor W., Russell, Memorial Bursaries .......... 610, 618
McCaig, Harrison McCaig Scholarships ............................... 608
McCauland, Gordon C. McCauland Scholarship ................... 618
McCulloch, H.B., Memorial Prize in Political Science .......... 628
McCurdy Printing and Typesetting Limited Scholarship ...... 623
<table>
<thead>
<tr>
<th>Name</th>
<th>Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>McDonald, Kenneth and Lloyd, Bursary</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McFarlane, Constance MacFarlane Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McFarlane, Ellen McCaughin, Prize</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McHnes, Donald McHnes Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McHnes, Hector, Memorial Scholarships</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McIntosh, Prof. &amp; Mrs. Robert Lloyd, Prize in French</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McIsaac, Paul, Memorial Prize</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McKee, Christopher, Award of Merit</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McKenna, Elizabeth, Bursaries</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McKesson Medal</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McKibbin, Constance &quot;Teak&quot; Memorial Bursary</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McKibbin, Kenneth H., Memorial Bursary</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McLaughlin, H. A. McLaughlin Memorial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>McNabb, Barbara &amp; James A. McNabb Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Neelis, Rhodes, Kanayacouchan Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Meigher, Nicholas P. Meigher Memorial Bursary</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Medigas Award for Clinical Achievement</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Medjuck Architectural Design Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Merk, Karen Merk Memorial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Meldy Dushovsky Memorial Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Merck Frost Evidence-Based Clinical Practice Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Merck Sharp and Dohme Pharmacy Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Meyeroth, Elisabeth, Scholarship in Music</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Microbiology and Immunology</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Military District No. 6 Provost Corps Bursary</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Millar, The Rosa Millar Bursary</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Miller, John Miller Memorial Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Minas Basin Pulp and Power Company Limited Scholarships</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Mineral Resource and Materials Engineering Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Mineralogical Association of Canada Student Prize</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Mining Society Centennial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Mining Society of Nova Scotia Centennial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Mobil Oil Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Mobil Oil Canada Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Montgomery Duerrill, Memorial Prize</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Montigny, Roger Montigny Memorial Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Moore, Donald, Memorial Award in Pharmacy</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Moore, John Reginald (Jang) Moore Memorial Scholarships</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Morrison, Lottie M. Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Morton, Silvanus, A., Memorial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Mosher, Malcolm Mosher Memorial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Muir, Joe A. Muir Phi Kappa Pi Bursary</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Murphy, J &amp; W Murphy Scholarships</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Murray, Richard &amp; Melda Murray Engineering Scholarships</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Murray, The Ruth Murray Scholarship for French Studies</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Muskat, Carl, Memorial Scholarships</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Music</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Myers, The Janet Lee, Memorial Bursary</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>NACE International “The Corrosion Society” Atlantic Canada Section Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nagak, Guru, Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Natatorial Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nature Conservancy Comprehensive Database Recognition Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Negus, Evelyn Negus Scholarship in Nursing</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Neish, A. C. Neish Memorial Trust Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nelson, Memorial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>New Brunswick Pharmaceutical Society Bursaries</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>New Brunswick Pharmaceutical Society Centennial Medal</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>New Brunswick Pharmaceutical Society Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>New Page-Port Hankenbury Mill Undergraduate Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Newfoundland and Labrador Alumni Undergraduate Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Newfoundland and Labrador Association of Architects William J. Ryan Memorial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Newfoundland and Labrador Federation of Agriculture Scholarships</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Newfoundland and Labrador Provincial Scholarships</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Newman, Norman, Business Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>NewPage-Hankenbury Mill Undergraduate Scholarship in Arts or Science</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Ngan, Tung Chun Ngan Memorial Bursary</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nicholson, Reverend I.W.A., Bursaries</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nickerson, Allan D., Memorial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Noble, Dr. Hugh A., Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Northstar Trade Finance - Thomas J. Bata International Exchange</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nova Scotia Egg Producers Association Scholarships</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nova Scotia Federation of Agriculture 100th Anniversary Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nova Scotia Federation of Agriculture Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nova Scotia Institute of Agrologists Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nova Scotia Mink Breeders Association Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nova Scotia Power Centennial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nova Scotia Power Inc. Centennial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nova Scotia Power Inc. University Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nova Scotia Veterinary Medical Association Bursary</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nova Scotia Women in Engineering Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Novartis Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Nutreco Canada Inc. Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>O</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Ogden, Dr. J. G. Ogden Memorial Prize</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Oland, Commodore Bruce S., Oland Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Oland, The Commodore Bruce S. Oland Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Olen, Leslie (Wing Prize in Community and Environmental Design)</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Oliver, Senator Donald, Bursary for Black Atlantic Canadians</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Ordey, Harold, Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>P</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Page, F. Hilton, Memorial Prize in Philosophy</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Palliative Care Nursing Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Paquet, Jason, Memorial Bursary</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Parent, Robert Parent Memorial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Parker, Frederick Thomas, Award for Part-Time Studies</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Passionate Plants Person Award</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Patterson Law Prize</td>
<td>.....................................................................................................</td>
</tr>
<tr>
<td>Patterson, Evette, Memorial Scholarship</td>
<td>.....................................................................................................</td>
</tr>
</tbody>
</table>
Qualifying for In-Course Scholarships ...........................................601

Q

R

Ritchie, Cicero T., and Hazel Robertson Scholarship ..................604
Rix, Dr. Robert G. Rix Family Farm Scholarship .................611
Robert, J. Arnold Roberts Memorial Scholarship .................611
Robertson, Lois J., Scholarships .............................................606, 608
Robertson, The George B. Robertson Phi Delta Theta Fraternity 
Scholarship .................................................................608
Rocca, Roberto Rocca Scholarships ........................................619
Rogers, Rodney M. Rogers Memorial Award .........................611
Rose, Tede Rose Memorial Scholarship ..................................611
Rosetti, Bruce and Dorothy Rosetti Engineering Undergraduate 
Scholarships ........................................................................616
Rosetti, Bruce and Dorothy, Engineering Scholarship ...............619
Rosetti, Bruce and Dorothy, Engineering Undergraduate 
Scholarships ........................................................................619
Ross, The Effie May Ross Scholarships in Music ......................615
Royal Saint George’s Society of Halifax Prize in Music ............627
Ruck, Calvin, Scholarship .......................................................620
Russell, Professor W. Russell Maxwell Memorial Bursaries .......643
Russell, Rick Russell Memorial Scholarship ............................612
Russell, Douglas, Memorial Book Prize ....................................635
Russian Studies ...............................................................................628
Ryan, John J. Ryan Award of Excellence in Pharmacy 
Administration .........................................................................634
Ryan, John J., Pharmacy Administration Award .......................624
Ryech, Stuart Ryech Junior A Bearcat Hockey Education 
Award Fund ............................................................................611

S

Sabah Metlej French Scholarship .............................................626
Salfon, Morris, Prize ...............................................................629
Salfon, Mr. & Mrs. Morris, Bursary ..........................................642
Sagewood Group Award for Entrepreneurship .......................621
Salvatore Paradise Scholarship .................................................614
Sandhu, Marcella Candra, Memorial Prize ..............................626
Sandoz Canada Bursary .............................................................646
Sandoz Pharmacy Administration Award ..............................634
Scholarship Appeals .................................................................601
Scholarship Assessment .............................................................601
Scholarship GPA Calculation .......................................................600

R

Radiology’s Awards .....................................................................631
Rajatraman, Cecilia Rajatraman Memorial Prize in Plant Cell 
Biology ..................................................................................631
Rankin, Gordon S. Rankin Memorial Scholarship .................624
Rebecca Cohn Bursary Fund .....................................................641
Record of Scholarships .............................................................601
Reduced Class Load and Retention of Scholarship ..................601
Religious Studies .......................................................................628
Renouf, Harold A. Renouf Scholarship .....................................606
Residence Scholarships ............................................................606
Retson, Cliff & Grace Retson Memorial Scholarship ...............611
Rhodin, Ira L., Rhodinize Memorial Scholarship ......................611
Rhodes, Dr. Edward (Ted), Scholarship in Engineering ..........619
Richardson Family Experimental Leaning Award ....................627
Richardson Family Performing Arts Scholarship – Theatre ....615
Ripley, Howard Ripley Scholarship ...........................................619

P

Payments and Rebates .................................................................600
Peacock, Andrew, Memorial Award ...........................................635
Pelletier, Ron Hayes and Dixie Pelletier Bursary in Biochemistry and 
Molecular Biology ..................................................................647
Pfister, John R. E. Parker Prize in Accounting .........................655
Perry, Erik Perh Memorial Award ..............................................627
Peters, David, Music Scholarship .............................................615
Pharmaceutical Bursaries ..........................................................646
Pharmacy Scholarship ...............................................................611
PHE (Physical and Health Education) Canada Student Award ....631
Philo ............................................................................................628
Phyllis Norrager Stern Award .....................................................633
Physics and Atmospheric Science .............................................622, 638
Political Science ..........................................................................628
Pollock, Alan Pollock Scholarship .............................................614
Pond, Margaret Nisell, Memorial Prize in English ...................626
Pooley, John C., Sportperson Award ...........................................631
Pork Nova Scotia Scholarship .....................................................611
Portability ..................................................................................600
Potter, Hugh J., Scholarship .....................................................604
Puglia Athletic Awards ...............................................................611
President’s Associates (Entrance) Scholarship .........................614, 616
President’s Associates Scholarship ............................................619
Prince Edward Island Institute of Agrologists Scholarship .......611
Prince, M. Caroline Scholarship ................................................620
Prince, Rev. S.H., Prize in Sociology ..........................................628
Prix de l’Alliance française ..........................................................626
Prix de l’Ambassadeur de Suisse au Canada .............................626
Prix du Conseil du Liban .............................................................626
Prize of the Ambassador of Austria in Canada, Prize of the Ambassador of 
Switzerland in Canada, and the Prize of the Ambassador of 
Germany in Canada .................................................................626
Prizes, Medals, and Awards ......................................................622
Psychology and Neuroscience ..................................................622, 638
Publicover, Warren, Class ’25 Memorial Bursary .................642
Pagley, B. Trevor, Memorial Pharmacy Award .........................634
Pagley, Mrs. Vera B., Award .......................................................634

Awards Index 659
Awards Index

Syngenta Pest Management Awards ................................................................ 612
Shaw Group Environmental Design Scholarship ............................................ 614
Shaw Group Scholarship in Civil Engineering ................................................. 619
Shaw, Leslie, Bursary ....................................................................................... 642
Sherwood, Dr. H. G. Sherwood Memorial Entrance Bursary ....................... 645
Shoppers Drug Mart Community Pharmacy Bursaries ................................ 646
Shoveller, Rod Shoveller Memorial Bursary ..................................................... 644
Shum-Ngai, Yau Hing Shum-Ngai Memorial Bursary ..................................... 647
Sigma Chi Leadership Award .......................................................................... 645
Sigma Theta Tau (Rh O-Rho Chapter) Award for Medical-Surgical Nursing ........................................................................ 633
Sinclair, Alexander, Scholarship ..................................................................... 605
Singh, Dr. Samar B., Prize in Anatomy ............................................................. 634
Singleton, Dr. J. Singleton Leadership Award .................................................. 631
Skeete, Jonathan, Memorial Prize ..................................................................... 629
Slaight, The Slaight Family Foundation Scholarship for African Students ..... 604
Smeltzer, G.G. Smeltzer Memorial Award ......................................................... 613
Smith, Charles A. Smith Memorial Bursary ....................................................... 642
Smith, Ronald G., Scholarship ......................................................................... 621
Society of Chemical Industry Merit Award ..................................................... 650
Society of Chemical Industry, Canadian Section, Merit Award ..................... 635
Sociology and Social Anthropology ................................................................. 628
Solano, David M., Scholarship .......................................................................... 606
Spanish and Latin American Studies ............................................................... 615
Spavold, Katherine (Norman) Spavold Scholarship ......................................... 605
Spavold, Stanley William Spavold Scholarship ................................................. 642
Spencer, Betty Scholarship ................................................................................ 621
Spirit of Chemistry Prize .................................................................................. 636
Sport Leadership Award ................................................................................... 612
Stairs, C.W., Memorial Scholarship ................................................................. 619
Stairs, William Stairs Memorial Prize ............................................................... 650
Stanfield, The Rl. Honourable Robert L., Bursary ............................................... 642
Stanfield, Walter Gardner, Scholarships ........................................................... 620
Starratt, Dennis Starratt Scholarship in Engineering ........................................ 619
Statement of Scholarship Terms ....................................................................... 600
Stead, Phillip Stead Memorial Leadership Award .............................................. 625
Steelc, Rose Steele Prize In Nursing ................................................................. 633
Steeves, Dr. A. E. Steeves Scholarship .............................................................. 620
Steward, Dr. Ron Steward Award for Student Leadership in Global Health .... 624
Stewart Smith, Ross, Scholarships ................................................................... 621
Stewart, Dr. H.L., Memorial Scholarship ........................................................... 628
Stewart, Frances L., Memorial Prize in Psychology ............................................ 658
Stewart, I.C., Trust Fund .................................................................................... 605
Stewiacke Valley Garden Club Scholarship .................................................... 612
Steyn, Carel, Stellenbosch International Student Bursary ................................ 628
Student Aid and Scholarships .......................................................................... 601
Student's Medical Response Trust Fund .......................................................... 640
Sverman, William D. Sverman Memorial Award ............................................. 612
Teva Canada Pharmacy Award ........................................................................ 634
Theakston, Dr. H.R., Memorial Award ............................................................... 630
Theatre ............................................................................................................. 615
Tiner, Dr. H.T., Memorial Award ........................................................................ 627
Todd, E. Walter, Scholarship ............................................................................. 622
Towe, John L., and Glenda E., Scholarships ....................................................... 608
Transfer Students ............................................................................................... 601
Transition Year Program ................................................................................... 629
Trenholm, Bruce Trenholm/Atlantic '86 Scholarship ........................................ 612
Trimmer, Dean and Marie Trimmer Bursary ...................................................... 642
Tritt, William Tritt Racial Prizes ......................................................................... 627
Tupp, Helen Tupp Mennon Bursary ................................................................. 612
Tuppen, James W., Graduate Fellowship in English ....................................... 626
Turner, Dr. Gerald, Bursary .............................................................................. 642
Types of Awards ................................................................................................. 600
U
Undergraduate Alumni Leadership Award ...................................................... 632
Undergraduate Award in Analytical Chemistry ................................................ 636
University Medal ............................................................................................... 633
University Medal in Agricultural Business ....................................................... 625
University Medal in Animal Science ................................................................ 625
University Medal in Aquaculture .................................................................... 625
University Medal in Biochemistry and Molecular Biology .............................. 635
University Medal in Biological Engineering .................................................... 630
University Medal in Biology ............................................................................ 636
University Medal in Canadian Studies .............................................................. 625
University Medal in Chemical Engineering ..................................................... 630
University Medal in Chemistry ....................................................................... 637
University Medal in Civil Engineering .............................................................. 630
University Medal in Computer Science ............................................................ 625
University Medal in Computer Engineering ..................................................... 625
University Medal in Contemporary Studies ..................................................... 626
University Medal in Creative Writing .............................................................. 625
University Medal in Early Modern Studies ....................................................... 625
University Medal in Earth Sciences ................................................................. 637
University Medal in Economics ....................................................................... 637
University Medal in Electrical and Computer Engineering ............................ 630
University Medal in Engineering ..................................................................... 625
University Medal in English ............................................................................ 626
University Medal in Environmental Landscape Horticulture ......................... 625
University Medal in Environmental Sciences .................................................. 630
University Medal in Environmental Studies .................................................... 630
University Medal in Environmental Science ................................................... 637
University Medal in French ............................................................................. 625
University Medal in Gender and Women's Studies ......................................... 626
University Medal in German ........................................................................... 626
University Medal in Health and Human Performance ..................................... 631
University Medal in Health Sciences ................................................................ 631

660 Awards Index
<table>
<thead>
<tr>
<th>Scholarship Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilson, George E., Memorial Scholarship</td>
<td>615</td>
</tr>
<tr>
<td>Wilson, G.P. Engineering in Business Scholarship</td>
<td>620</td>
</tr>
<tr>
<td>Wild Blueberry Producers Association of Nova Scotia</td>
<td>645</td>
</tr>
<tr>
<td>Wickwire, Susan (Cox), Bursary in Engineering</td>
<td>655</td>
</tr>
<tr>
<td>Wickwire, Lloyd Hopkins, Bursary</td>
<td>658</td>
</tr>
<tr>
<td>White, Dr. Lilyan E. White Prize</td>
<td>661</td>
</tr>
<tr>
<td>Whidden, Michael Whidden Memorial Award</td>
<td>665</td>
</tr>
<tr>
<td>Where Dalhousie Scholarships can be Used</td>
<td>670</td>
</tr>
<tr>
<td>University Medal in History</td>
<td>626</td>
</tr>
<tr>
<td>University Medal in History of Science and Technology</td>
<td>627</td>
</tr>
<tr>
<td>University Medal in Industrial Engineering</td>
<td>630</td>
</tr>
<tr>
<td>University Medal in Integrated Environmental Management</td>
<td>625</td>
</tr>
<tr>
<td>University Medal in International Development Studies</td>
<td>627</td>
</tr>
<tr>
<td>University Medal in Italian Studies</td>
<td>627</td>
</tr>
<tr>
<td>University Medal in Linguistics</td>
<td>627</td>
</tr>
<tr>
<td>University Medal in Management</td>
<td>635</td>
</tr>
<tr>
<td>University Medal in Marine Biology</td>
<td>636</td>
</tr>
<tr>
<td>University Medal in Materials Engineering</td>
<td>630</td>
</tr>
<tr>
<td>University Medal in Mechanical Engineering</td>
<td>630</td>
</tr>
<tr>
<td>University Medal in Microbiology and Immunology</td>
<td>638</td>
</tr>
<tr>
<td>University Medal in Mining Engineering</td>
<td>638</td>
</tr>
<tr>
<td>University Medal in Music</td>
<td>645</td>
</tr>
<tr>
<td>University Medal in Neuroscience</td>
<td>645</td>
</tr>
<tr>
<td>University Medal in Pharmacy</td>
<td>655</td>
</tr>
<tr>
<td>University Medal in Philosophy</td>
<td>658</td>
</tr>
<tr>
<td>University Medal in Plant Science</td>
<td>658</td>
</tr>
<tr>
<td>University Medal in Psychology</td>
<td>658</td>
</tr>
<tr>
<td>University Medal in Religious Studies</td>
<td>658</td>
</tr>
<tr>
<td>University Medal in Russian Studies</td>
<td>659</td>
</tr>
<tr>
<td>University Medal in Social Anthropology</td>
<td>659</td>
</tr>
<tr>
<td>University Medal in Sociology</td>
<td>659</td>
</tr>
<tr>
<td>University Medal in Spanish and Latin American Studies</td>
<td>659</td>
</tr>
<tr>
<td>University Medal in Statistics</td>
<td>659</td>
</tr>
<tr>
<td>University Medal in Theatre</td>
<td>659</td>
</tr>
<tr>
<td>University Medals</td>
<td>660</td>
</tr>
<tr>
<td>University Silver Medal</td>
<td>674</td>
</tr>
<tr>
<td>University Medal in Mineral Resource Engineering</td>
<td>650</td>
</tr>
<tr>
<td>Upham, L.A. &amp; Edith, Scholarship</td>
<td>665</td>
</tr>
<tr>
<td>Vair, Douglas, J. Scholarship</td>
<td>606</td>
</tr>
<tr>
<td>Varma Prizes in Gothic Literature</td>
<td>626</td>
</tr>
<tr>
<td>Vernon, Margarette J. Vernon Scholarship</td>
<td>605</td>
</tr>
<tr>
<td>Vessey, Ann &amp; Ian Vessey Scholarship</td>
<td>605</td>
</tr>
<tr>
<td>Vrang, Pan American Wheelchair Games Scholarship</td>
<td>620</td>
</tr>
<tr>
<td>Wales, Freda N., Memorial Scholarship</td>
<td>620</td>
</tr>
<tr>
<td>Walsh, F. W. Walsh Memorial Scholarship</td>
<td>612</td>
</tr>
<tr>
<td>Walter, Bob, Award</td>
<td>612</td>
</tr>
<tr>
<td>Ward, Florence (Piano) Ward Memorial Award</td>
<td>612</td>
</tr>
<tr>
<td>Warr Summer Undergraduate Research Awards</td>
<td>621</td>
</tr>
<tr>
<td>Waverly Prize</td>
<td>658</td>
</tr>
<tr>
<td>Webster, Raymond Webster Memorial Scholarship</td>
<td>613</td>
</tr>
<tr>
<td>Weil, Sonja R., Memorial Bursary</td>
<td>646</td>
</tr>
<tr>
<td>Weldon Scholarship</td>
<td>620</td>
</tr>
<tr>
<td>Well, F. Hume Wells Scholarship</td>
<td>605</td>
</tr>
<tr>
<td>Where Dalhousie Scholarships can be Used</td>
<td>600</td>
</tr>
<tr>
<td>Whiddle, Michael Whidden Memorial Award</td>
<td>612</td>
</tr>
<tr>
<td>White, Dr. Lilya E. White Prize</td>
<td>638</td>
</tr>
<tr>
<td>Wickwire, Lloyd Hopkins, Bursary</td>
<td>645</td>
</tr>
<tr>
<td>Wickwire, Susan (Cox), Bursary in Engineering</td>
<td>645</td>
</tr>
<tr>
<td>Wild Blueberry Producers Association of Nova Scotia Scholarship</td>
<td>612</td>
</tr>
<tr>
<td>Wilson, Dr. George E. Prize in History</td>
<td>626</td>
</tr>
<tr>
<td>Wilson, G.P. Engineering in Business Scholarship</td>
<td>620</td>
</tr>
<tr>
<td>Wilson, George E., Memorial Scholarship</td>
<td>615</td>
</tr>
<tr>
<td>Wisdom, Jane Wisdom Memorial Bursary</td>
<td>646</td>
</tr>
<tr>
<td>Wolter, Norbert Wolter Memorial Scholarship</td>
<td>622</td>
</tr>
<tr>
<td>Women’s Division - Dalhousie Alumni Association Medal in Costume Studies</td>
<td>628</td>
</tr>
<tr>
<td>Women’s Division Bursaries</td>
<td>642</td>
</tr>
<tr>
<td>Women’s Division of the Dalhousie Alumni Association Medal</td>
<td>631</td>
</tr>
<tr>
<td>Women’s Division of the Dalhousie Alumni Association Scholarships</td>
<td>606</td>
</tr>
<tr>
<td>Wong, W. Lee &amp; S. Wong Bursary</td>
<td>645</td>
</tr>
<tr>
<td>Wood, Walker Wood Foundation Science Bursary</td>
<td>605</td>
</tr>
<tr>
<td>Wood, Walker Wood Foundation Theatre Bursary</td>
<td>644</td>
</tr>
<tr>
<td>Wright, Don, Scholarship in Music</td>
<td>613</td>
</tr>
<tr>
<td>Wright, Don, Scholarship of Excellence*</td>
<td>605</td>
</tr>
<tr>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Yeh, Hua, Shao, &amp; Wen Hsiang, Prizes</td>
<td>636</td>
</tr>
<tr>
<td>Young Farmer’s Award (sponsored by PEI Young Farmers Association)</td>
<td>612</td>
</tr>
<tr>
<td>Young, Sir William, Gold Medal</td>
<td>638</td>
</tr>
<tr>
<td>Young, Sir William, Scholarship</td>
<td>608</td>
</tr>
<tr>
<td>Z</td>
<td></td>
</tr>
<tr>
<td>Zink, Christian, Book Award</td>
<td>628</td>
</tr>
<tr>
<td>Zink, Christian, Scholarships</td>
<td>615</td>
</tr>
<tr>
<td>Zonneveld, Tietje, Scholarship in Piano Studies</td>
<td>615</td>
</tr>
<tr>
<td>Zwerling, The Charles and Cecelia Zwerling Scholarship</td>
<td>614</td>
</tr>
</tbody>
</table>

Awards Index 661
DALHOUSSIE UNIVERSITY CAMPUS

CARLETON CAMPUS

ROBIE ST.

UNIVERSITY AVENUE

F

F100 Dentistry Building
F120 Burbidge Building
F140 Forrest Building
F200 Tupper Building
F220 Clinical Research Centre
F260, F270 LSRI & Innovacorp
F280 Construction Site - CHEB
Collaborative Health Education Building

CARLETON ST.

SPRING GARDEN ROAD

SUMMER ST.

COLLEGE ST.

MARTELLO RD.

IWK GRACE HEALTH CENTRE

H

H220 Bethune Building

SOUTH ST.

SOUTH PARK

OFF-CAMPUS

Z012 City Centre Atlantic – 5523 Spring Garden Road
Costume Studies
AHPRC

F170 5161 George St, Suite 700
School of Health Administration

H130 Dalhousie Legal Aid Building – 2209 Gottingen St
Legal Aid Services

J950 Thompson Building
Human Communications Disorder
Learning Resource Centre

Sexton Campus

Many Sexton Campus buildings are labelled both by name and letter (which appears in brackets in the listings where appropriate).

J

J011-12 Ira MacNab Building (A)
J051-52 B Building
J100 Electrical Engineering (C)
J110 H.R. Theakston Building (C1)
J150 A.L. MacDonald Building (D)
J200 Sexton House (E)
J250 Chemical Engineering (F)
J280 G.H. Murray Building (G)
J301-02 Ralph M. Medjuck Bldg. (Architecture and Planning) (H)
J351-52 F.H. Sexton Memorial Gymnasium
J400 Hart House, Engineering Mathematics (K)
J450 Moren House (L)
Engineering & Computer Science Cooperative Education

J

J500 M.M. O'Brien Hall (M)
J550 N Building
J600 Graduate Student Residence (O)
J650 A.E. Cameron Building (P)
J700 Bernard N. Cain Building (Q)
J800 R Building
J810 Rz Building
J850 Dust Explosion Lab (T)
J870 Metallurgy Research Lab (U)
J901-02 Industrial Engineering, Dean of Engineering
J910 Gerard Hall
J920 Morris S247
J980 Electrical and Computer Engineering Mobile

QUEEN ST.

SOUTH PARK

BARRINGTON ST.

MORRIS ST.

Spring Garden Road

Law Courts

Collaborative Health Education Building

F220

Construction Site – CHEB

Emergency “Code Blue” Phone

Note: maps are not drawn to the same scale